Next-Gen IT

Reinventing The Data Center

How to make your data center smaller, cheaper and more efficient. **AFTER PAGE 16**

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Microsoft Shifts ODF Stance

Backs effort for free plug-ins to save Office files in the open-source format

BY ERIC LAI

In a tacit acknowledgment of the OpenDocument format's increased momentum, Microsoft Corp. said last week that it will back an open-source project to create software that will allow Microsoft Office users to open and save files in ODF.

The project, hosted on SourceForge.net, is being led by three independent software vendors that are receiving funding from Microsoft and is open to all developers, said Tom Robertson, general manager for standards and interoperability at Microsoft.

The goal is to develop free plug-ins that allow users to natively save Word, Excel and PowerPoint files in ODF, as well as convert files in Office 2007's OpenXML format to ODF and back.

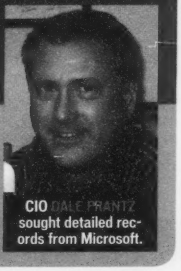
"XML is good, standardized XML is good, and choice is good. This is an interesting announcement," said Louis Gutierrez, CIO for the Massachusetts state government. Last September, Massachusetts announced plans to be-

Microsoft ODF, page 45

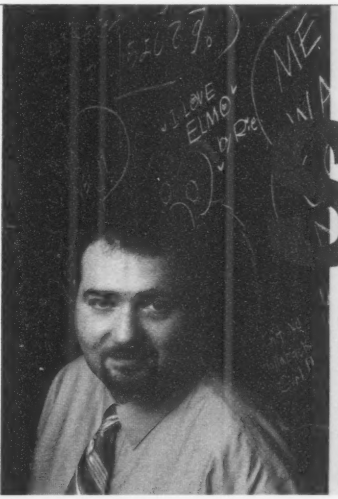
IN DEPTH

Plan Stirs User Anger

Microsoft is working to quell criticism of its Software Asset Management program, which has left some users confused, distrustful or downright angry. Some customers complain that Microsoft has charged them with possible license violations as part of a pitch to get them to join the program. Carol Sliwa reports on PAGES 6-8.



CIO DALE FRANTZ sought detailed records from Microsoft.



PETER MURPHY

Vital Signs

Early warning: Many IT managers are finding that it's getting tougher to recruit and retain key IT talent, according to our new quarterly survey on the health of IT. **PAGE 35**

NOAH A. BROADWATER (left) of Sesame Workshop has lost workers to higher-paying jobs.

Budget Crisis Tests N.J. IT Operations

Gov't shutdown shows technology is the 'umbilical cord' for state services, says CTO

BY PATRICK THIBODEAU

Many IT managers have developed contingency plans for dealing with drastic personnel absenteeism due to an emergency, such as a pandemic.

But Adel Ebeid, New Jersey's chief technology officer, last week had to manage a man-made crisis when an impasse over the state budget led to a government shutdown that forced him to reduce his staff to a tenth of its normal level and turn to contingency plans designed for service disruptions.

The shutdown, which began July 3, forced the New Jersey Office of Information Technology to temporarily cut its staff from 930 to 80 employees, including a limited number of application developers. Those employees had to handle essential IT functions, such as operating data centers and maintaining network and Internet services.

"Unfortunately, at a time like this, IT really doesn't shut down. If anything, IT really steps up quite a bit," Ebeid said. "This has been an excellent lesson statewide on how IT actually proved to be sort of the umbilical cord for government operations."

Lawmakers reached a budget agreement late Thursday, ending the shutdown. It was not known at press time when all the workers would return to their jobs.

Teri Takai, CIO of the Michigan Department of Information Technology, said that anytime a state has a crisis, "we always learn a lot about what constitutes critical IT services." Takai had such an experience during the 2003 blackout that cut power for some 50 million people, from Michigan to New England. Now New Jersey's IT department "will definitely get some good feedback on what constitutes critical services," she said.

Ebeid said his major concern has been to keep the WAN running and to ensure the quality of e-mail and Internet services.

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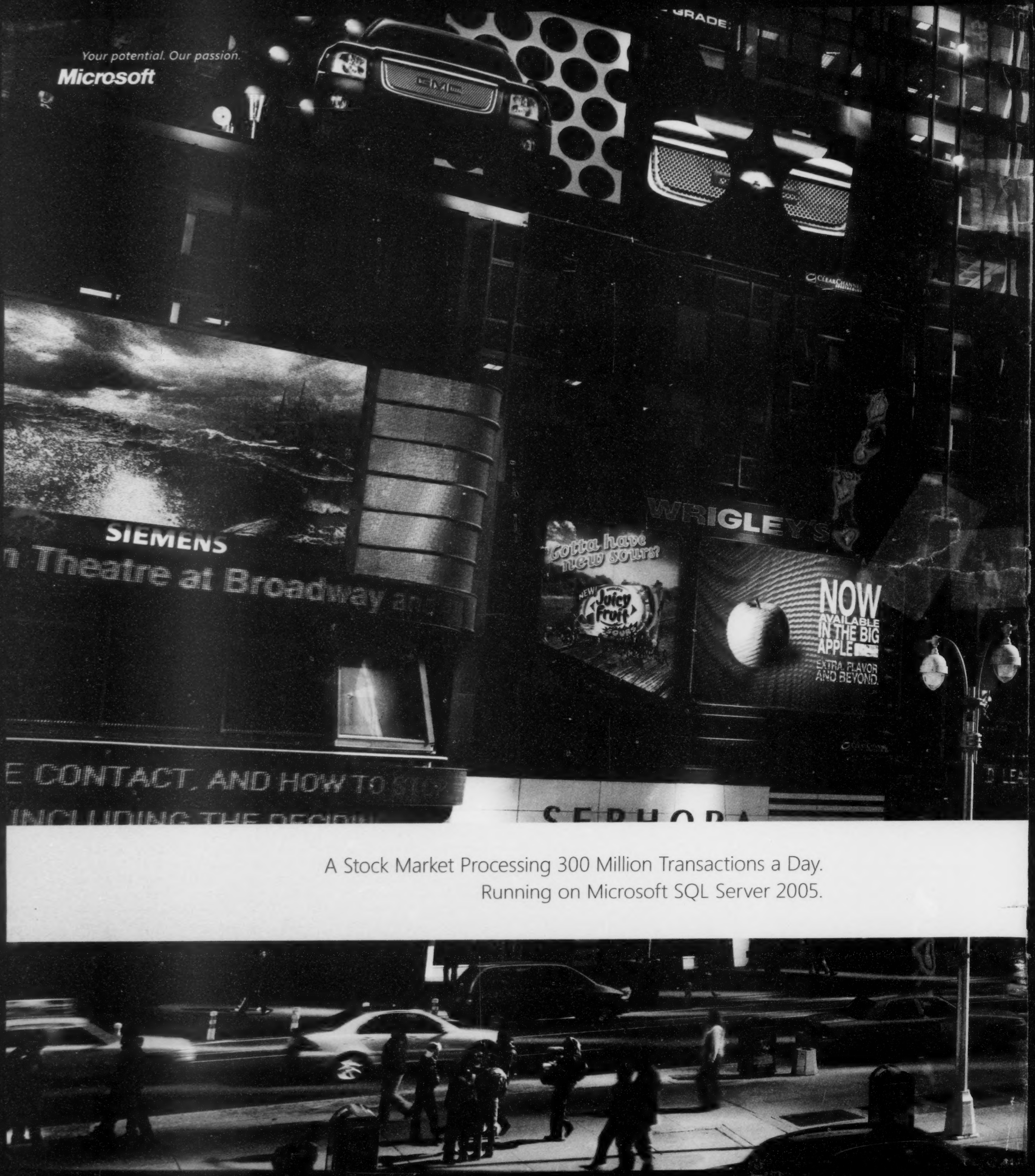
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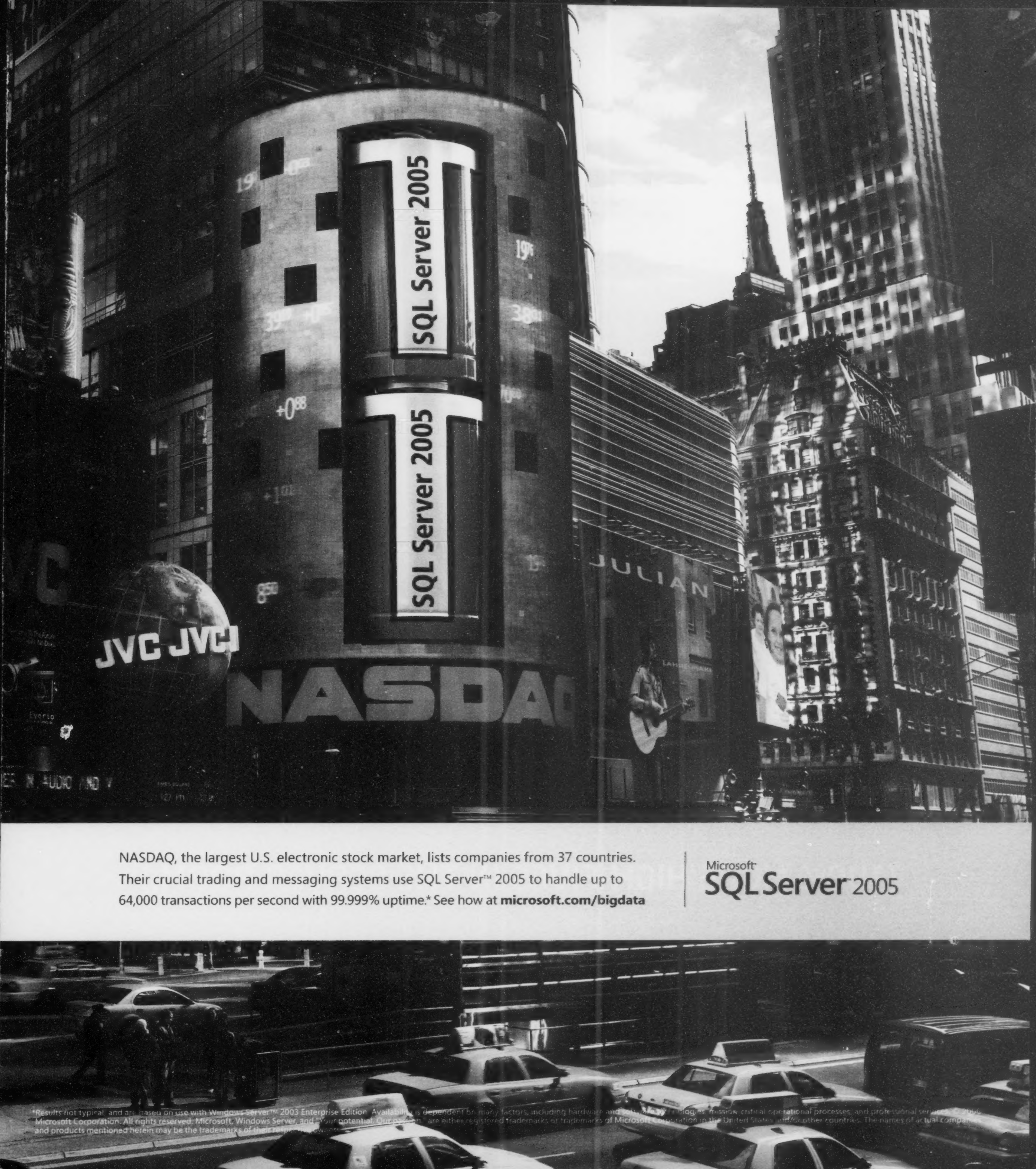

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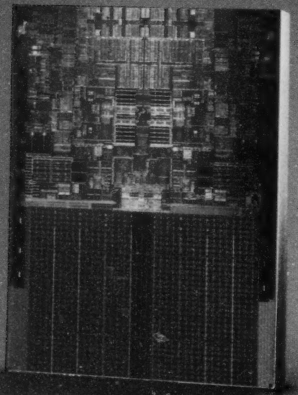

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In the Technology section: Managing e-mail content has become a mission-critical task that IT needs to address on three fronts: incoming, outgoing and archiving. **Page 25**

When HQ Is Over There

In the Management section: CIO Russ Finney of Tokyo Electron America knows it takes a combination of keen observation skills, social-savvy and intuition for CIOs of U.S. subsidiaries to strike up successful relationships with executives located half a world away. **Page 38**

NEWS

IN DEPTH

MICROSOFT is extending its Software Asset Management program to appease critics who charge that the company has used the threat of an audit to get them to join up.

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HEY, PUT THOSE BACK!

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ONLINE

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Online Job Networks For the 55-Plus Crowd

CAREERS: Companies are eager to lure back to the workforce retirees with decades of experience, writes *CareerJournal*'s Kristi Essick. Find out what Web resources are available for those not ready to call it quits.

www.computerworld.com/careers

The Second Factor

PRIVACY: Columnist Jay Cline offers some alternatives for two-factor authentication.

www.computerworld.com/security

Developing a Reference Architecture

STORAGE: A surprising number of infrastructure projects seem to start from the bottom up instead of the top down, likely because of vendor prodding. Columnist Jim Damoulakis offers some advice on proper planning.

www.computerworld.com/storage

Keep Your Site Up in a Disaster

NETWORKING: Greg Schaffer prepared a plan to maintain emergency Web communications in the event of a disaster and soon found his DNS redirect plan put to the test.

www.computerworld.com/networking

Back From the Brink

WEBCAST: Last year's hurricane season brought chaos to IT shops across the Southeast. In this webcast, recorded at the 2006 Premier 100 IT Leaders Conference, a panel of IT managers offer a candid view of where and how their IT and business continuity plans worked, what they didn't see coming, and how they plan to prepare and respond the next time disaster strikes.

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Users Leery of Microsoft License Checks

Question vendor's insistance that SAM program isn't an audit

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Auto Warehousing CIO DALE FRANTZ says he had "a few sleepless nights" after Microsoft contacted him about what it called an "urgent matter."

BY CAROL SLIWA

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Rivera was emphatic, though, that Microsoft was not looking for a specific return on investment when it started the SAM program. "Our main driver," he stressed, "is customer and partner experience."

Paul DeGroot, an analyst at Directions on Microsoft, said the SAM program is being driven by Microsoft's partner group rather than by its licensing team, and customers can expect the company to raise the profile of the SAM program among its partners.

As it now operates, the SAM program essentially provides Microsoft partners with free sales leads. At the end of their Microsoft-paid SAM engage-

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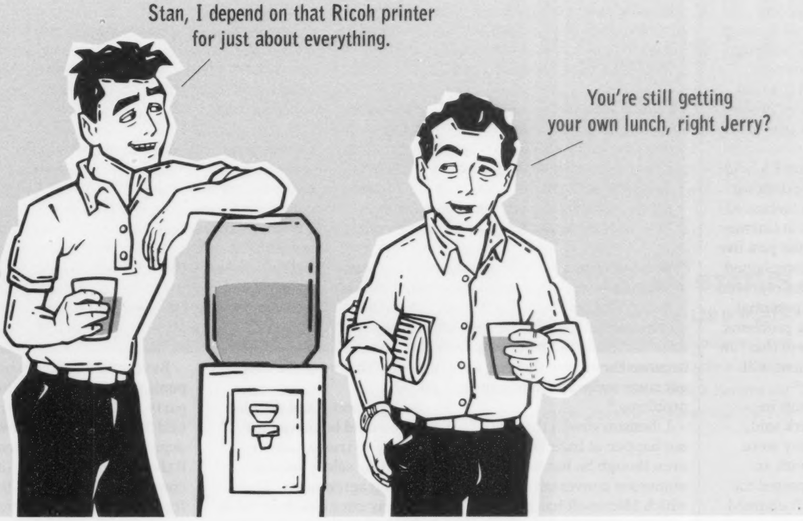
Microsoft's SAM investments have paid off handsomely — in some countries, the company gains $40 for every dollar spent on the program, Rivera said. In the U.S., the ratio is 15-1, he estimated.

Rivera was emphatic, though, that Microsoft was not looking for a specific return on investment when it started the SAM program. "Our main driver," he stressed, "is customer and partner experience."

Paul DeGroot, an analyst at Directions on Microsoft, said the SAM program is being driven by Microsoft's partner group rather than by its licensing team, and customers can expect the company to raise the profile of the SAM program among its partners.

As it now operates, the SAM program essentially provides Microsoft partners with free sales leads. At the end of their Microsoft-paid SAM engage-


Stan, I depend on that Ricoh printer for just about everything.
You're still getting your own lunch, right Jerry?

Ricoh dependability moves your ideas forward.

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ments, the third parties have a chance to sell their consulting services or tools.

"It's a great deal for the consulting company. We can't understand why any partner would turn down the opportunity to do this," said David Burns, a principal at Universal Management Solutions in Sammamish, Wash.

Burns estimated that 20% of his company's more than 100 SAM engagements have led to sales of either consulting services or its license inventory and management tool, called licenseITall.

Benefits to Microsoft

And the future revenue opportunity doesn't stop with the partners. Once the consultant has assessed a customer's license situation, it makes recommendations about volume-licensing options that could be more beneficial to customers. Those recommendations also happen to benefit Microsoft whenever the customer elects to upgrade its licensing status — especially to an Enterprise Agreement (EA).

The EA is typically the most lucrative volume-licensing deal for Microsoft because a customer must commit to run a standardized package of its software on every desktop PC. In return, the company receives better pricing and the rights to all covered products released during the three-year contract time frame, as well as training and support benefits.

But Rivera maintained that "SAM is not about selling." He said customers are not forced to accept the recommendations made by partners or Microsoft, and overlicensed customers might even be advised to downgrade.

"It's not about squeezing the customer and trying to get as much money as possible from them," Rivera said.

"It's about the benefits to the customer," he professed.

Both of the SAM reference accounts that Microsoft supplied to *Computerworld* wound up signing deals for EAs after their consulting engagements — despite failing to meet the eligibility requirements for the program. To qualify for an EA, a company must have 250 or more desktop PCs.

Lovitt & Touche Inc. had about 220 employees at the time of its SAM engagement and took up a recommendation to move up to an EA, according to Ian Crawford, manager of IT at the Tucson, Ariz.-based insurance agency.

Another Microsoft reference account, a software development company, had only 174 clients at the time of its SAM engagement, according to an IT project manager at the company.

But the company agreed to pay for the full 250 clients after Microsoft came through with training and service incentives, the IT manager said. In one fell swoop, the company was able to clear up license-compliance woes that had resulted from its 2004 sale to another company, pave the way for expected growth, reduce the financial hit by spreading payments over three years and ease the burden of software tracking for its four-person IT staff, the manager added.

Since EAs cover all desktop PCs, each running a standard set of Microsoft software, there's no need to figure out who's running what. Companies true up once a year based on PC count.

While that benefits EA holders, it also opens the door for high-pressure sales tactics. Alvin Park, an analyst at Gartner Inc., noted that for the past five years clients have complained about Microsoft sales representatives mentioning potential license-compliance problems and then telling them that "an Enterprise Agreement will make that go away."

Whether Microsoft intended it or not, Park said, some clients felt they were being threatened with an audit. When he reported the incidents, Microsoft claimed that it didn't engage in such practices and would fix the problem, Park said. But he noted that he still hears monthly from at least two clients "who think they're being manipulated into signing an agreement they wouldn't otherwise sign because they know they've got some software compliance problems."

Libenson vowed that will not happen at Ingersoll-Rand, even though he has had numerous conversations in which Microsoft has claimed an EA would be "the solution for everything." He said that given Microsoft's trouble meeting scheduled product-release dates, the EA would become beneficial only if his company needed "voluminous amounts" of support from Microsoft. That's not the case, he added.

So Ingersoll-Rand decided that it would be more cost-effective to true up under its existing select volume-licensing agreements. The company cut a check for nearly $250,000 to cover its Office deficiencies and is currently figuring out the payment due for SQL Server client-access licenses, although its exposure may be less than Microsoft thinks, because it's primarily an Oracle shop, Libenson said.

But that true up isn't happening because of any third-party SAM review. Libenson told Microsoft that his own IT department would determine if the company was out of compliance, on its own time frame, using the Symantec Corp. Discovery tool that it bought for about $200,000.

"Microsoft's a great software company, but when it comes to sales, they're severely lacking," said Libenson. "They just don't know how to do business with Fortune 500 companies." ▸

Microsoft Exec Downplays Compliance

FRAMINGHAM, MASS.

When Microsoft's **Juan Fernando Rivera** visited *Computerworld* late last month, his title was director of worldwide license compliance. Rivera now identifies himself as the worldwide director of software asset management, or SAM. In an ironic twist, Rivera is now adamant that SAM is not about license compliance, contending that "compliance is a byproduct of software asset management." Rivera discussed the role of SAM in an interview with *Computerworld*.

How do you decide which customers to contact about participating in the SAM program? It changes depending on the marketplace. Germany is a more mature marketplace around software asset management. [Customers and partners there] talk about software asset management, and they decide on their engagement.

For the customers that Microsoft engaged directly, we do some data mining. If you look at companies, for example, that have a volume license purchase history of 300 units, yet under public records they have 1,000 desktops, we tend to think it might be a possibility for that customer to be out of control in terms of the licenses' coverage. So we want to have a conversation with them around software asset management.

Couldn't a customer get confused when compliance is mentioned in the initial e-mail to them? Right. Probably we need to revise that. But it's part of the whole education that we have to do in the field as well around what SAM is and how to educate on SAM.

Isn't it possible that an honest person might get upset by this approach? Yeah, the possibility of that happening does exist. And I'm not going to deny that. But the records that we have are very limited. It's just limited to [volume agreement] purchases. That's why we want to sit down with the customer and have a conversation with them. We're assuming positive intent on the customer's part.

When you target a customer who may really be in compliance, don't you risk losing that customer? That could happen. [And] yes it's risky. But that's why I want to have an open conversation with the customer. And that's why we're pretty transparent about what we do.

Did you sign off on the script that the U.S.-based SAM force seems to work off – letters that bear striking resemblance to one another and sometimes escalate with a tone that some customers perceive as threatening? No. That's part of the autonomy that they have in terms of how they define the processes. We give them general guidance on that, and if the script calls to be revised, we should spend the time and revise it.

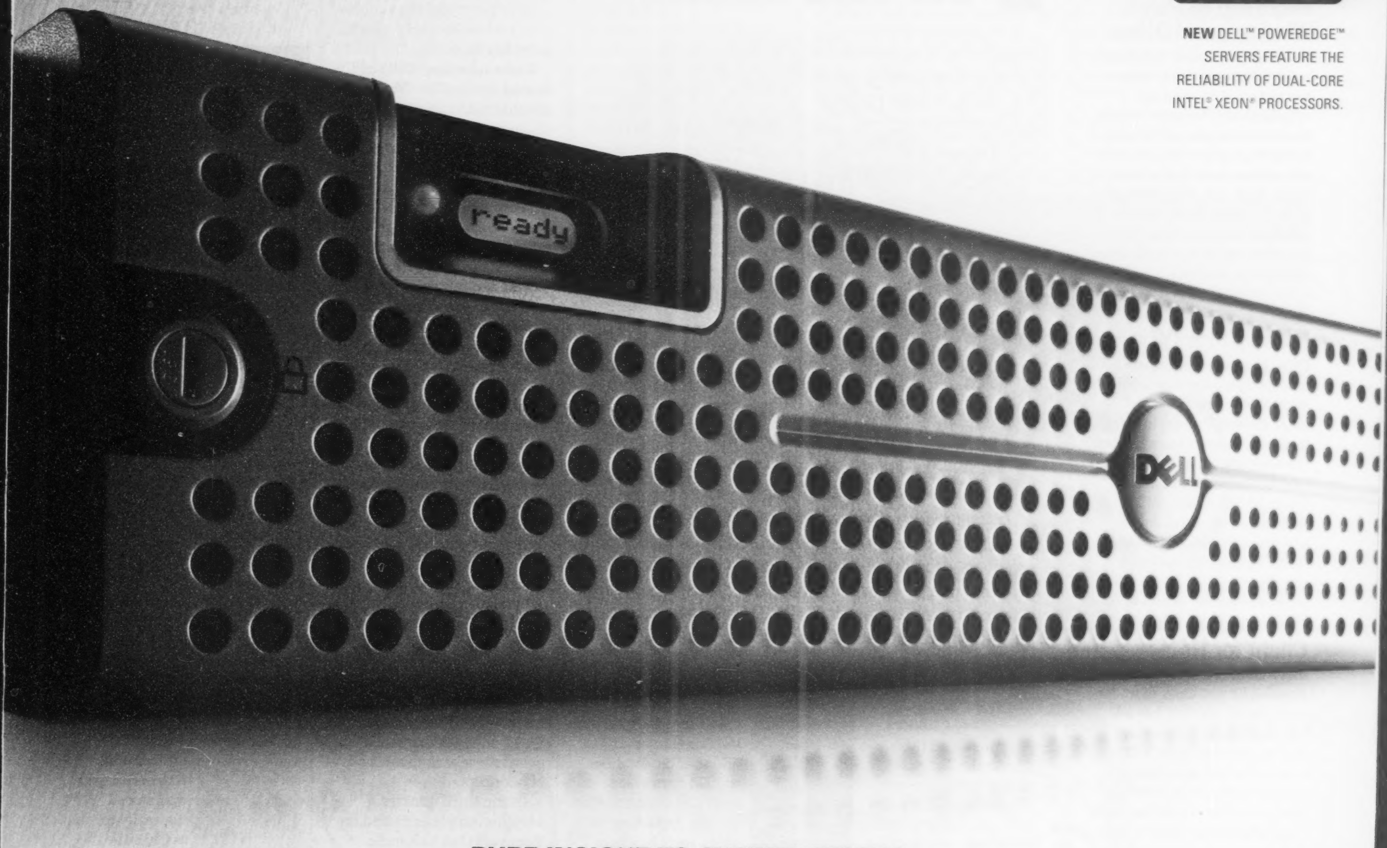
Is the script being revised? We spend a lot of time educating our internal people as well. Software asset management, even internally at Microsoft, is hard to discuss because some people don't get it, in terms of being vendor-agnostic, not being about Microsoft, not being about audits. That's why we call it something different. We call it SAM reviews. It's not an audit. Even internally, some of the executives still keep referring to that as audits. I've been in plenty of meetings with VPs where they say "audits" and I have to stand up and say, "Excuse me, they are not audits."

Isn't it still an audit of sorts, without the hammer at the end? Yeah, it doesn't have fines. It doesn't have penalties. Maybe it tends to sound like that.

Is there anything being done to change some of these processes? We're revising processes internally. We have spent time talking with different people, educating them on what we are doing and our goals around software asset management.

Is the program really about creating an upselling opportunity using the databases of information gained through SAM reviews? It's not about forcing the customer into buying something new. It's not about the customer moving into a different scheme. It's about the benefits to the customer. If a customer can save money getting to a volume license agreement versus buying full-packaged product, that would be a recommendation. But it's our recommendation. It's not about selling.

– CAROL SLIWA



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AT DEADLINE

Microsoft to Patch Windows and Office

Microsoft Corp. plans to release seven software patches tomorrow as part of its regularly scheduled monthly patch update. Four of the updates will fix bugs in Windows, while three of them will address flaws in Microsoft Office. Both sets of patches will address critical flaws, which attackers could exploit to run unauthorized code on a PC without any user action.

AMD Cuts Sales Forecast for Q2

Citing lower-than-anticipated sales of laptop and desktop PC microprocessors, Advanced Micro Devices Inc. has lowered its second-quarter sales forecast. The company cut its sales forecast for the quarter by about 9% to $1.215 billion. AMD's second quarter ended July 2, and the company will formally report its earnings results on July 20.

IBM to Ship Linux Client for Notes

IBM's Lotus unit is set to start shipping its first Linux client for Lotus Notes, starting July 24. The new release, a free download for licensed Notes 7.01 users, was built using the Eclipse development environment. It will work with any major Linux distribution, according to IBM. Lotus will support versions running on specific versions of Red Hat Enterprise and SUSE Linux. The Linux client has been tested by 5,000 internal IBM users for about a year.

Cisco Buys Security Software Firm

Cisco Systems Inc. has agreed to buy Meetinghouse Inc., an endpoint security software maker, for $43.7 million. Meetinghouse's Aegis line of authentication software helps to manage network access using the IEEE 802.1x standard. The move is part of a Cisco effort to integrate security management software into its hardware.

[ON THE MARK

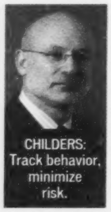
HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL]

THE COMPANY'LL NEVER MISS A FEW DISCS!
WANNA BET?
EIM
EIM
EIM
Hey, Put those BACK!

MATTHEW FAULKNER

Keep Tabs on The Ethics . . .

. . . of your workers, managers and partners. If you're like most people, you're not perfect. But some people are even less perfect than you, and your company probably needs to know more about how employees' imperfections can put it at risk. That's the premise behind the Enterprise Incident Manager (EIM) software as a service (SaaS) from EthicsPoint Inc. in Portland, Ore. CEO David Childers explains that EIM is a centralized repository of company-specific ethical advice and miscues. For example, with EIM, workers can learn whether a gratuity offered by a supplier is an acceptable gift or a hidden bribe, according to your policies. Also, EIM includes a hot line that employees can use to anonymously reveal questionable behavior — anything from sexual harassment to theft — inside your company. Childers says that by centralizing a company's ethical information, executives can learn whether ethical lapses are repeatedly occurring in a given region or in a specific manager's office. He says the data, which is encrypted in EIM, is generally consolidated from departments such as human resources, legal and security. Access is role-based.



CHILDERS: Track behavior, minimize risk.

In the third quarter, the company plans to add specific modules to EIM to oversee workers' compensation claims, including variables such as where claims happen and how often. Annual subscriptions are $20,000, plus a per-seat cost for end-user access.

SAN, NAS worlds get continuous . . .

. . . data-processing updates. Whether you run a storage-area network or a network-attached storage environment, managing the data archive can be a burden when you need to recover an application to a particular point in time.

BURGENER: Move beyond CDP.

Rami Schwartz, CEO of Exanet Inc. in New York, says his NAS tool targets organizations with big storage needs, especially those with "somewhere north of 30TB." His ExaStore product, which includes a full NAS file system and backup tools, takes snapshots of your storage changes every 30 seconds, so you can return to a data condition to within less than a minute of your needs.

Eric Burgener, vice president of marketing at Mendocino Software Inc. in Fremont, Calif., argues that applications like his firm's RecoveryOne go beyond continuous data protection (CDP) and should be labeled "continuous data technologies" (CDT) because you can do more than just recover your data to a past condition. Burgener says CDT is broader because you can use it to validate a new app by using "live" production data from one of the images RecoveryOne makes of your SAN. He adds that you can also update your data warehouse more frequently. "This is more than CDP," which he contends is primarily a backup and recovery concept.

In the third quarter, Mendocino plans to update RecoveryOne to handle application-specific needs, such as recovering Microsoft Exchange to the mailbox level.

Partial SaaS approach yields . . .

. . . a complete IT monitoring service. James Maiocco is a big believer in SaaS. But the CEO of Klir Technologies Inc. in Seattle offers a twist to the fast-growing movement for delivering software to people's desktops: It puts software on your network too. Here's how it works: Klir Analytics, which starts as a $108-per-month service, gives IT pros metrics on application performance, bandwidth availability, system performance and more, using data gathered by Klir software running on your network. The gathering tool packages the data, encrypts it and then sends it to the Klir data center, where the analytics are crunched and reported back to IT users' role-based dashboards, says Maiocco. He says the software will run on any off-the-shelf Windows 32 machine. Later this quarter, Klir will release its application programming interface and begin to monitor "special-device protocols," such as those used by MRI machines.

$48M
India's SaaS market in 2008, says Springboard Research.

Get control of your Office . . .

. . . docs to avoid "the smoking-gun document problem." That's the advice from Darren Lee, CEO of NextPage Inc. in Draper, Utah. Billions of Excel, Word, PowerPoint and other Microsoft Office files clutter the world's disk drives annually. Lee estimates 25% to 30% of your share of those files is vital enough to be managed and stored centrally to avoid surprises — that smoking gun — should they become fodder for litigation. Lee says a big part of the problem is that end users pass around confidential files like candy. With Version 2.0 of NextPage's eponymous software, due for general release in the fourth quarter, you can set policies for any document that needs to be automatically stored in a central repository. The NextPage tool also knows when to delete sensitive files anywhere on your network. Pricing starts at $100 per user per year. ▸

7.5B
Tower Group's estimate of the number of Office files created each year.

Indiana Hospital Readies Voice-Over-Wi-Fi for Nurses

BY MATT HAMBLEN

Nurses will soon be using voice-over-Wi-Fi phones in a hospital in Indiana as part of an effort to improve their mobility and reduce network costs, an IT official said last week.

"We think that technology will really take off, giving each nurse one phone and one number and using the same wireless network that data is already on," said Dan Allee, a technical specialist at Hancock Regional Hospital in Greenfield, Ind.

Allee said he and consultants believe that switches and wireless access points from Extreme Networks Inc. that the hospital added last year will preserve security and privacy for voice conversations and also prove to be reliable. About 50 nurses on a hospital staff totaling 800 will use the voice-over-Wi-Fi phones, which are expected to be rolled out by the end of the year, Allee said.

The hospital, which has 106 beds and five branch facilities, is currently evaluating phones from three equipment makers: Cisco Systems Inc., Vocera Communications Inc. and SpectraLink Corp.

In general, hospitals have to take care when installing voice-over-Wi-Fi systems to ensure that private conversations can't be monitored and that the supporting hardware can support multiple users, said Jack Gold, an analyst at J.Gold Associates in Northboro, Mass.

Allee said Hancock installed more than 30 of Extreme's Altitude 350-2 access points last year to address such security and scalability concerns. "We're very impressed with the throughput of the APs, as well as the coverage," he said.

Voice streams will take a different pathway through the system than data streams, thanks to separate access domains governed by Extreme Summit WM series switches, Allee said. The system has been tested to support "more users than we would ever need," he said.

The hospital already has about 250 IP wired phones on the system, some at remote sites. Toll costs on some of the remote site calls have been completely eliminated, which will cut annual operating costs for calls to those sites by 50% over five years, Allee said. He could not provide an estimate of the overall savings but said the convergence project has yielded greater network flexibility and the ability to support a wider array of collaboration applications.

Allee said Hancock chose Extreme's networking products primarily because "they were the best in their particular line."

"[Extreme is] big enough, and we wanted to make sure they would be around for a while," he said. ▸

Hancock Network Features

- **One Extreme BlackDiamond 8810 switch,** providing core switching functionality for voice over IP and data.
- **Three Extreme Summit WM series switches** for part of the Wi-Fi network support.
- **More than 30 Extreme Altitude access points** for Wi-Fi access.
- **250 wired IP phones.**
- **Voice-over-Wi-Fi phones for 50 nurses** (to be rolled out soon).

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BRIEFS

Mercury Officials Face Charges

Mercury Interactive Corp. announced that it has restated its earnings for 2002 to 2004 and disclosed that three board members are facing possible civil enforcement proceedings. Mercury refiled financial statements for its fiscal 2002, 2003 and 2004 years. It also said that the board members – Igal Kohavi, Yair Shamir and Giora Yaron – face charges in connection with an accounting scandal that hit the company last year.

Microsoft Faces Lawsuits Over WGA

Microsoft Corp. has been hit with a second lawsuit over Windows Genuine Advantage, its antipiracy program that checks whether the Windows operating system on a machine has a valid license. The class-action suit, filed in U.S. District Court in Seattle, alleges that WGA is spyware and that Microsoft misleads consumers by labeling it as a critical security update. The suit maintains that WGA frequently contacts Microsoft's central servers.

Oracle reports $2B In Asian Revenue

Oracle Corp.'s Asian revenue topped $2 billion for the first time during its most recent fiscal year. The software vendor said revenue from the Asia-Pacific region, including Japan, totaled $2.02 billion during the company's 2006 fiscal year, which ended May 31, up 18% over the previous fiscal year.

Microsoft Names EMEA Executive

Microsoft last week promoted the head of its Dutch subsidiary to vice president for the public sector for Europe, the Middle East and Africa (EMEA). Michel van der Bel replaces Jan Muehlfeit, who was earlier named EMEA vice president for corporate and government strategy. Van der Bel reports to Gerri Elliott, corporate vice president for worldwide public sector.

Visa, MasterCard Unveil New Security Rules

Updated PCI standard will cover Web applications and third-party controls

BY JAIKUMAR VIJAYAN

VISA U.S.A. INC. and MasterCard International Inc. will release new security rules in the next 30 to 60 days for all organizations that handle credit card data, a Visa official said last week.

The rules will be the first major update to the one-year-old Payment Card Industry data security standard, which analysts said is slowly but surely being adopted.

One set of PCI extensions is aimed at protecting credit card data from emerging Web application security threats, said Eduardo Perez, vice president of corporate risk and compliance at Foster City, Calif.-based Visa. Other new rules will require companies to ensure that any third parties that they deal with, such as hosting providers, have proper controls for securing credit card data.

PCI became a universal requirement on June 30, 2005, for all entities handling credit card data. Merchants who fail to comply with PCI can face fines or be excluded from processing credit cards.

The standard lists 12 broad controls that retailers, online merchants, data processors and other businesses must implement to protect cardholder data. They include technology controls such as data encryption, end-user access control and activity monitoring, as well as procedural mandates.

Most existing PCI requirements focus on security at the network level, but many of the latest threats are on the application side, said Philippe Courtot, CEO of Qualys Inc., a Redwood Shores, Calif.-based provider of managed security services. So it makes sense to update PCI to protect against Web application threats such as SQL injection attacks, cross-site scripting flaws, error-handling problems and validation errors, he said.

The PCI standard could become stricter in the next few years. Currently, companies are encouraged, but aren't required, to use payment applications that meet a set of payment application best-practices standards, but that will become compulsory over the next two years, Perez said.

The number of companies complying with PCI requirements finally appears to be picking up after a slow start, several analysts said. Visa says that about 22% of Tier 1 merchants, which the company defines as those processing more than 6 million card transactions per month, are already PCI-compliant, with another 72% on track to becoming fully compliant.

The numbers reveal that progress is being made, albeit slowly, said Avivah Litan, a Gartner Inc. analyst. One of the biggest technology challenges is PCI's requirement for encryption, Litan said. Some companies are uncertain whether they are required to encrypt data or can implement other compensating controls, she noted.

Another factor in the slow pace of adoption is the perception that PCI, unlike government mandates, is a private standard lacking enforcement teeth, said Nigel Tranter, a PCI auditor at Payment Software Co., an auditing firm in San Jose. ▸

Credit Card Data Security

Proposed updates to the Payment Card Industry data security standard:

- Guidelines for Web application security.
- Rules for ensuring that third parties protect cardholder data.
- Rules requiring companies to keep track of credit card data that they send to or receive from third parties.
- A plan to make payment application best practices mandatory in about two years.

SOURCE: VISA U.S.A.

Metastorm Closes BPM Loop

BY HEATHER HAVENSTEIN

Metastorm Inc. this week will foray for the first time into system-based process management, with new software designed to give users end-to-end business process management capabilities.

With the introduction of Metastorm BPM Version 7, the vendor unites two traditionally disparate functions among pure-play BPM players: the management of human-centric processes and system-based processes. The new suite includes an integration management tool — gained from Metastorm's acquisition of CommerceQuest Inc. — to allow users visibility and access to processes running on ERP systems and legacy systems such as IBM mainframes, said Laura Mooney, senior director of corporate and product marketing at the Baltimore-based company.

Although previous versions of Metastorm's tools have been able to trigger system-based actions in a process, users have not been able to manage or control these system-based processes on the native system or gather data about their performance, she added. As a result, companies interested in boosting the efficiency of a process had no way to see if it was being held up by a bottleneck in a system, Mooney said.

Hap Cluff, IT director for the city of Norfolk, Va., said that his organization is interested in the new tool's ability to help the city gain visibility into processes running on systems such as its IBM CICS.

"We're at a place where we have to make decisions on legacy systems," he said. "We don't want to get rid of them. [With the new software], we can live with some of our legacy systems longer . . . and still be able to integrate them into other operations of the organization."

Gaining Visibility

The city has put off some projects that require the closed-loop management of human-centric and system-based processes because it has lacked an easy way to gain the visibility into processes on legacy and other back-end systems, Cluff added.

"If we can now have that window into those systems more easily, that will help us," he said.

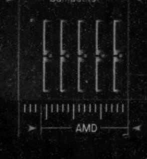
Although he declined to specify a time frame, Cluff said the city does plan to upgrade its Metastorm BPM tools to the newest version.

Nathaniel Palmer, president of research firm Transformation and Innovation in Hingham, Mass., said this announcement moves Metastorm ahead of other pure-play BPM companies, including Lombardi Software Inc., Pegasystems Inc., Savvion Inc. and IDS Scheer AG, in bringing together human-centric and system-based BPM. While Metastorm had traditionally focused on human-centric BPM, it was weak on the systems side before acquiring CommerceQuest last year, he added.

"[Version 7] really is a closed loop," Palmer said. "It is not just a set of disparate functions." ▸

Dinosaurs always leave huge footprints.

Is every square inch of your data center occupied by space-hogging servers of another era? It's time to pack more power into your data center with systems based on the Dual-Core AMD Opteron™ processor. They're designed to generate less heat in blade server environments, so you can achieve higher server density per rack. And thanks to its Direct Connect Architecture with HyperTransport™ technology, the AMD Opteron processor provides more performance-per-watt and CPU scalability. In short, huge performance in a smaller space.



AMD Opteron™ processors can increase server rack density by 25% over the competition.

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BRIEFS

Lenovo Grants IBM ThinkVantage License

Lenovo Group Ltd. has agreed to allow IBM Global Technology Services to license its ThinkVantage software for deployment on non-Lenovo PCs. ThinkVantage automates PC support functions. The deal marks the first time the software is available for systems other than Lenovo's ThinkPad notebooks and ThinkCentre desktops.

OpenOffice.org Warns of Flaws

The OpenOffice.org open-source community has issued a warning that its productivity software contains flaws that can give hackers access to full system resources. The vulnerabilities affect OpenOffice.org Versions 2.0.x and 1.1.x. and StarOffice Office Suite Versions 6, 7 and 8, according to Secunia AP.

Toshiba Signs Deal For Rambus Chips

Toshiba Corp. has agreed to pay a contested licensing fee to Rambus Inc. for its synchronous dynamic RAM and double data rate (DDR) memory technology. Terms of the deal were not disclosed. The license agreement is a victory for Rambus in its battle to force memory chip makers to pay for the use of technology in mainstream SDRAM and DDR memory chips. Most memory-chip makers have argued that Rambus did not originally disclose ownership of the patents.

McAfee Adds Flaw No. 200k to Database

McAfee Inc. last week added the 200,000th definition to its antivirus database, and the security vendor expects the total number of identified threats to double in two years. Following a lull in their efforts, virus writers have spent the past few years creating more malware than ever before, said Jimmy Kuo, a research fellow at McAfee's Avert Labs. At the same time, the number of serious outbreaks has dropped dramatically, he said.

Sun Pitches Big x86 Server For Virtualization Projects

Users not sure if eight-socket, dual-core servers are needed yet

BY PATRICK THIBODEAU

SUN MICROSYSTEMS Inc. this week plans to announce new x86-based server products, including one that can support up to eight dual-core chips. In doing so, Sun is betting that IT managers will increasingly move to large systems as part of a consolidation and virtualization strategy.

Most business users today rely on two-socket systems, so moving to eight sockets is a big step up. Analysts said eight-socket models are a tiny part of the x86 server market, and not all vendors sell them. IBM sells eight-socket x86 systems. However, Hewlett-Packard Co. last year dropped an eight-socket system it had introduced in 2003.

The new Sun Fire x4600 runs Advanced Micro Design Inc.'s Opteron chip, which can scale from two to eight sockets. It's "really a virtualization platform that allows customers to consolidate dozens or more conventional two-socket systems that never get fully utilized," said Andy Bechtolsheim, Sun's chief architect and senior vice president for network systems.

Bob Pappagianopoulos, corporate director of technical services and operations at Partners HealthCare System Inc. in Boston, said he hasn't needed to go beyond four sockets for any of his x86-based applications. But the health care provider is testing virtualization, and that could lead to the use of larger servers to support multiple applications, Pappagianopoulos said.

"If we're successful on putting many applications on a four-way, then we may look to expand," he said. "But I don't see us doing that in the next one to two years."

Charles Orndorff, vice president of infrastructure services at Crossmark Holdings Inc. in Plano, Texas, is a user of HP's discontinued eight-socket system who has switched to buying HP's four-socket, dual-core systems. Although pleased with the four-socket performance, he said he isn't ruling out the need for eight sockets at some point, but he quickly added that quad-core chips are coming.

Sun expects that some early users will be high-performance computing sites, such as the Tokyo Institute of Technology, which bought 655 of the x4600 servers to create a supercomputer that's ranked the seventh-fastest in the world.

Satoshi Matsuoka, head of computing infrastructures at Tokyo Tech, said the university wanted a system that's compatible with traditional supercomputers — "very fat nodes, with lots of CPUs and memory per node." Each physical server is a node.

This week, Sun is also expected to release its Sun Fire x4500 data server, which uses a two-socket Opteron chip and comes with up to 24TB of storage in 48 500GB drives. Sun said this product, which was code-named Thumper, isn't a replacement for traditional storage systems but will speed up storage-intensive applications such as video searching and business intelligence.

IDC analyst Jean Bozman said that by bringing together storage and computing elements, Sun will be able to take out network latency and improve throughput and performance. "Large servers put memory close to processors," she said. "This is similar thinking." ◗

New Sun Products

These systems, which run AMD Opteron dual-core chips, will be available this month:

Sun Fire x4600	Sun Fire x4500 Data Server	Sun Blade 8000 Modular Systems
Can scale from two to eight sockets and fit into a 4U chassis	Two sockets, plus up to 24TB of storage	Chassis that can support 10 four-socket blades
Supports Solaris, Windows and Linux	Supports Solaris and its Zettabyte File System	Supports Solaris, Windows and Linux
Pricing: $25,995 for four sockets	**Pricing:** Starts at $32,995 for the 12TB configuration	**Pricing:** $14,600 for one blade and chassis

Microsoft to Revamp ERP Pricing

BY MARC L. SONGINI

Microsoft Corp. today is expected to unveil a new licensing scheme that uses a per-concurrent-user pricing model across its multiple lines of Dynamics ERP applications.

The pricing schedule, dubbed Business Ready Licensing, is for the Microsoft Dynamics AX, GP, NAV and SL applications, said Tami Reller, corporate vice president of the Microsoft Business Solutions marketing group.

The current model is based on several variables, including the number of modules in use, she said. The new model offers flexibility for companies looking to gradually add seats, Reller said.

Andy Vabulas, CEO of Norcross, Ga.-based systems integrator I.B.I.S. Inc. and a Microsoft Dynamics customer and partner, said he likes the new pricing scheme.

"It will make it easier for us to sell and our clients to buy [the software]," he said. "Anytime you can simplify pricing, it is good. Global consistency is easy to understand."

The base price for the Business Ready offering starts at $2,250 per user.

The higher-end Microsoft Dynamics Advanced Management Edition, which offers more complex financial and accounting applications along with software for manufacturing and project accounting, is priced at $3,980 per concurrent user.

Typical ERP configurations will cost about 10% to 15% less than they do under the current model in companies with fewer than 15 users, Reller said.

New Maintenance Plan

Microsoft is also rolling out a new maintenance plan that includes unlimited training resources for a fee equal to 16% of the price of the software license. Existing maintenance fees are generally set from 10% to 20% of the software licenses.

The Business Ready Licensing plan will take effect on Aug. 1. The new Business Ready Enhancement maintenance pricing schedule will be fully effective by March 2007.

Although he likes the unlimited training offer in the maintenance plan, Nick Garbidakis, chief technology officer at the New York-based American Bible Society, said he will withhold comment on the pricing until he sees the details and breakdown of the cost involved. The society uses Microsoft ERP software.

Garbidakis did note that since he's in the midmarket, none of the pricing plans particularly benefit him, because they are generally designed for small or large companies. ◗

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Our technology vision that makes this promise real is called Enterprise IT Management, or EITM. At its heart is the CA Integration Platform — a common foundation of shared services that gives you real-time, dynamic control and flexibility. Its greatest benefit? CA software solutions come to you already integrated, and able to integrate with your existing technology to optimize your entire IT environment.

Ultimately, a well-managed IT environment gives you the visibility and control you need to manage risk, manage costs, improve service and align IT investments. To learn more about how CA and our wide array of partners can help you unify and simplify your IT management, visit **ca.com/unify**.

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GLOBALDISPATCHES

An International IT News Digest

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SEOUL, SOUTH KOREA

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Microsoft appealed the ruling in March and also asked the Seoul High Court to defer the deadline until the appeal is heard.

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"While Microsoft believes that the KFTC's order will hinder technological innovation in Korea," the company will continue its Korean business, it said in a statement.

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SOURCE: CIPHERTRUST INC., ALPHARETTA, GA.

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"There's a review under way of all of AOL's businesses in Europe," said a spokesman for AOL (U.K.) Ltd. in London.

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Telstra CEO Threatens To Scrap $2.2B Project

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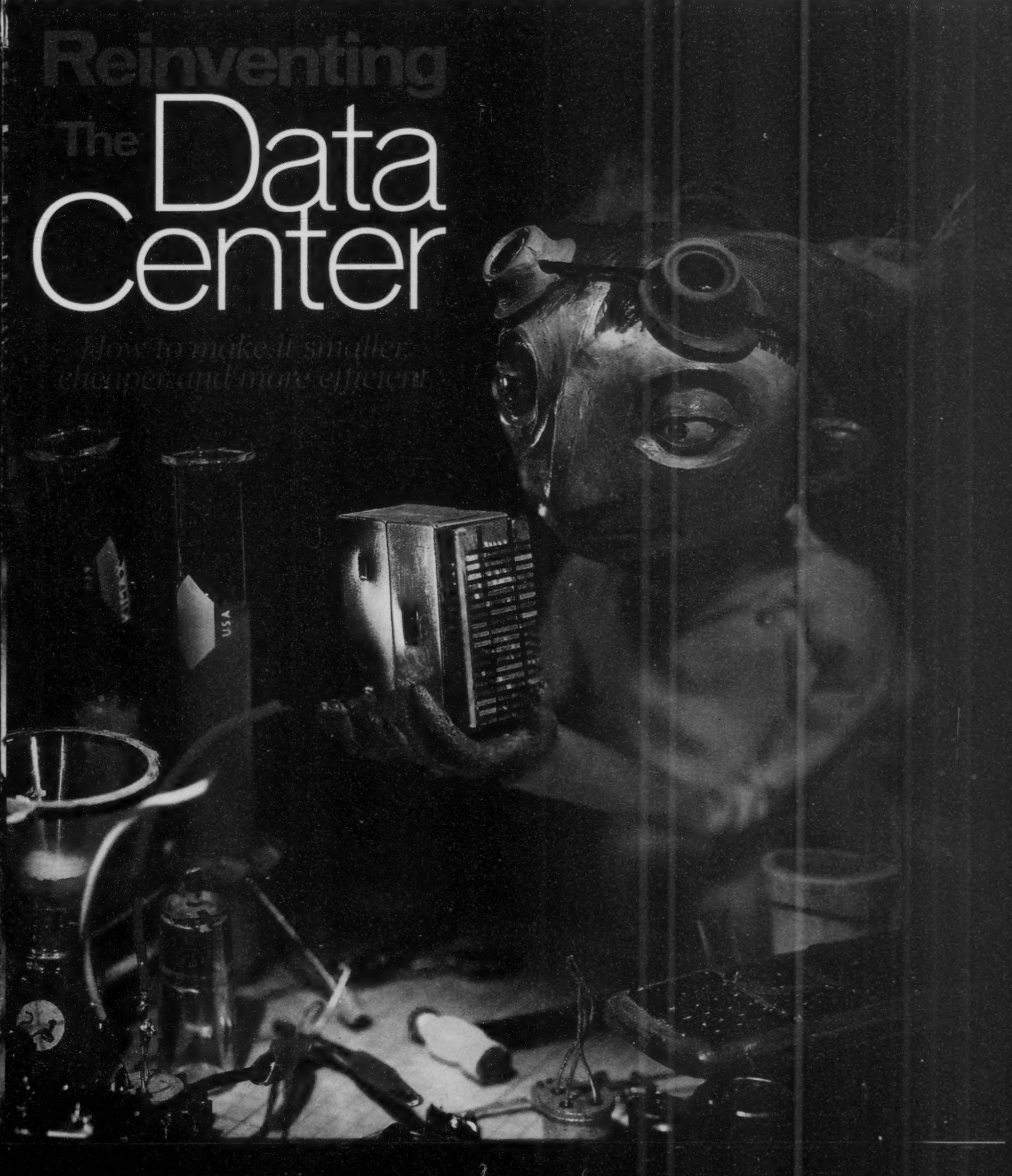
Next-Gen IT

Vol. 1, Issue 2, July 2006

A SERIES FROM THE EDITORS OF COMPUTERWORLD AND CIO

Reinventing The Data Center

How to make it smaller, cheaper and more efficient



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(UNTIL IT STOPS.)

Simply hoping a disaster or security breach won't happen isn't good enough. Lack of business continuity planning can have catastrophic implications for a company. System unavailability can skyrocket into millions of dollars per minute of downtime. Customer loyalty and regulatory compliance efforts can also be compromised. Thankfully, Symantec offers technologies and services that help reduce the risk, duration and frequency of downtime. Even in the event of a security breach or power outage. To find out more about how to help eliminate downtime as a threat to the security and availability of your network, visit www.symantec.com/datacenter

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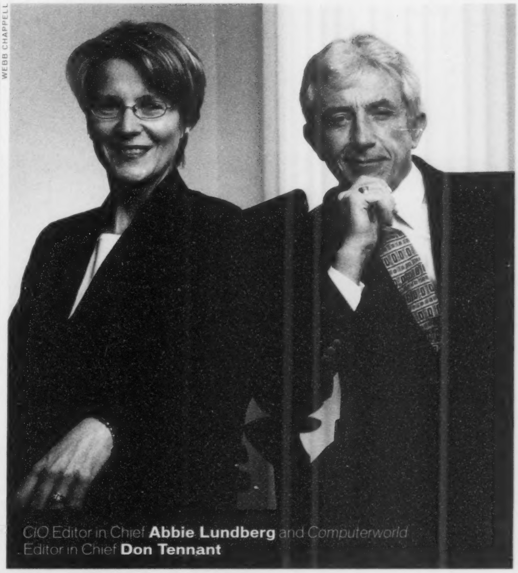
EDITORS' NOTE


WEBB CHAPPELL

CIO Editor in Chief **Abbie Lundberg** and *Computerworld* Editor in Chief **Don Tennant**

Mother of Reinvention

IT'S SAFE TO SAY that when Plato wrote in *The Republic* that necessity is the mother of invention, he had no concept of a 21st century enterprise data center. If he had, he might have mused that it's what gives birth to reinvention as well.

As IT professionals across the country and around the world strive to understand the promise and the challenges of the next generation of information technology, they recognize that nowhere is that understanding more crucial than in the core of their IT operations: the data center.

In this second edition of the Next-Gen IT series, produced jointly by the editorial teams of *CIO* and *Computerworld*, we look at the factors driving what can very aptly be described as a reinvention of the enterprise data center. Indeed, that reinvention is born of necessity: the relentless need to drive the business by cutting costs and improving customer service.

NEXT-GEN ONLINE

For the online edition of this publication plus relevant, related content from *CIO* and *Computerworld*, visit our Web site:

It's clear that the reinvented, next-generation data center will be a bastion of virtualization, consolidation and automation technologies. What isn't so clear is how best to address the difficulties — and even some anomalies — inherent in their implementation.

Conventional wisdom suggests that virtualization enables companies to cut staffing costs, since there's less equipment to be maintained in a virtualized environment. Yet many CIOs are finding that those costs actually increase because the environment is more complex and requires a more highly skilled staff. Consolidation by means of blade servers may cut maintenance and management expenses, but those savings can be more than offset by the cost of the energy required to cool them.

We are confident that our anchor stories in this edition — "Lighting the Path to 'Lights Out'" (page 4) and "Management: The Missing Piece of the Puzzle" (page 12) — will spark a valuable discussion of what this essential reinvention will entail. Together with the balance of the issue and additional content available on our Web site (ITNextGeneration.com), they provide an intriguing glimpse into the data center yet to be fully conceived. ◆

STRATEGY
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TECHNOLOGY
"Management: The Missing Piece of the Puzzle"
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CIO COMPUTERWORLD THE VOICE OF IT MANAGEMENT Computerworld editor in chief **Don Tennant** ■ CIO editor in chief **Abbie Lundberg** ■ Special projects editor **Ellen Fanning** ■ CIO managing editor **David Rosenbaum** ■ Art director **April O'Connor** ■ Illustrator **Red Nose Studio** ■ Managing editor/production **Monica Sambataro** ■ Research editors **Lorraine Cosgrove** and **Mari Keefe** ■ Site architect **William Hall**

Lighting the Path to 'Lights Out'

Here are some strategies to reduce the technological and managerial complexities of reinventing your data center.

BY GALEN GRUMAN

THE TWIN PRESSURES of doing more for the business and keeping IT costs down are forcing many CIOs to rethink their approach to one of their most critical responsibilities and one of their largest costs: the enterprise data center. A joint *Computerworld/CIO* survey of 389 IT executives shows that 63% are seeking increased efficiency from their data centers, while 60% are looking to bring in new capabilities.

"CIOs are seeing that the economics of yesterday's data center isn't going to work in the future," says Michelle Bailey, research director at IDC. "You can't have more people, more I/O and more servers with every new application," she says.

New technologies, such as virtualization and automation, hold significant promise in changing the economics of the data center, largely by reducing both the labor and equipment needed to be maintained and optimized. The next-generation data center, promoted by vendors as "lights out," moves away from the maintenance-and-repair model to the orchestrate-and-prevent model. In the lights-out data center, systems largely manage themselves and a smaller core of IT staff focuses on improving the data center's ability to drive innovation and enhance the business.

But adoption of these next-generation technologies introduces architectural and integration challenges. The technologies' varying levels of maturity will require a staged implementation approach and demand that CIOs rethink their data center staffing model. "It's a lot to bite off," says Galen Schreck, a senior analyst at Forrester Research Inc.

VIRTUALIZATION ON THE RISE

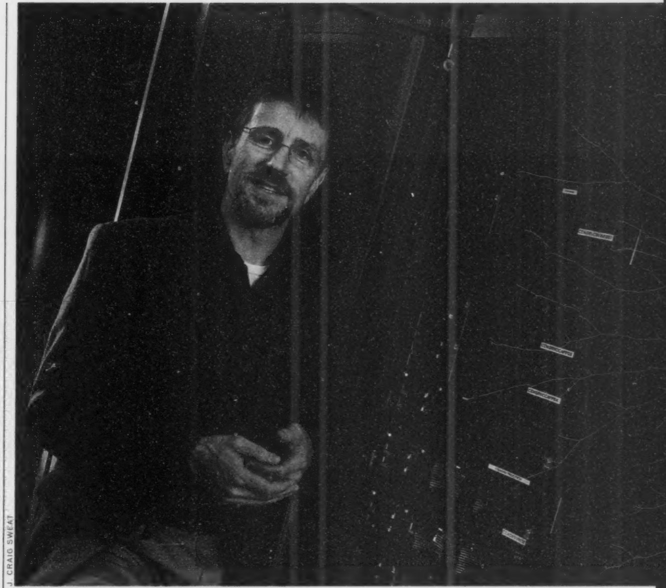
- **More than three quarters of all companies with 500+ employees** are deploying virtual servers.
- Respondents currently using server virtualization technologies report that they expect **45% of new servers purchased next year** to be virtualized.

SOURCE: IDC 2005 SURVEY

Virtualization: Promises

One new technology in particular — virtualization — can help CIOs significantly improve operations and

RED NOSE STUDIO



J. CRAIG SWEAT

> The skill sets change dramatically. … We have fewer, more highly talented people.
> **MICHAEL CARPER,** CIO, COLDWATER CREEK INC.

flexibility in the data center. By separating software from the hardware on which it runs, virtualization can make the data center far more flexible and agile in five ways:

- It lets you treat multiple hardware devices, like servers or storage systems, as one device. Conversely, it allows you to separate individual physical servers into multiple virtual ones, making it easier to scale storage and applications up or down upon demand.
- It permits you to use cheaper, generic hardware and aggregate it into virtually unified systems that are more cost-effective.
- Virtualization makes it easier to handle equipment failure because you can move a virtual environment to other available hardware quickly.
- By treating hardware resources as one pool, virtualization lets you use that equipment more efficiently, so you need less equipment.
- Outside the production environment, virtualization makes it easier to set up, change and tear down test environments.

Clothing retailer Coldwater Creek Inc. is using virtualization to reduce its number of physical servers, leading CIO Michael Carper to predict that he will be able to "extend the life of the data center by five years."

At Corrections Corporation of America (CCA), which runs about 60 prisons, virtualization not only helps reduce hardware needs, it also speeds provisioning of new servers. "It takes just hours to bring in additional capacity, not days," says CIO Brad Wood.

Although server virtualization technology is advancing rapidly, there has been less progress on the storage side, notes Schreck. That's because traditional large-systems vendors, such as EMC Corp. and Hitachi Data Systems Corp., don't want to see storage become commoditized, says John Webster, senior analyst at Data Mobility Group LLC. But other vendors, such as Symantec Corp. and Kazeon Systems Inc., now offer software for heterogeneous environments that can virtualize generic storage systems and interact with proprietary systems.

Virtualization: Challenges

Virtualization technology is fairly new. Consequently, not all applications can work in a virtualized environment, cautions Kris Dominick, president of data center consulting at Data Dimensions Inc. "You need to start with a feasibility assessment," he says. Today, virtualization also requires a restart to change the environment, so it won't work to redistribute computing and storage resources automatically on the fly.

An irony of the virtualized data center is that your staffing costs could increase even as your staffing levels decrease, says Wood. It takes more skill and experience to work in a virtualized environment than in a traditional one. As server and storage capacity is optimized, your buffer is diminished to handle fail-overs and unexpected loads. Furthermore, you have to know what resources are in use by which applications and understand which resources are now shared, since any failures or workload rebalancing can affect multiple systems simultaneously. "You need a highly skilled, highly paid staff to manage this more complex environment," Wood says. "You can't have just the generalist anymore." The *Computerworld/CIO* survey bears this out: 44% of respondents say they expect to need a more highly skilled staff to run a virtualized data center.

The adoption of virtualization also raises political issues for CIOs. In a virtualized data center, business units may no longer have servers with their names inscribed on them. "Virtualization gets a lot of resistance [from business departments] because it's shared services. People don't play well in the sandbox together," IDC's Bailey notes. "A lot of people like to own their infrastructure."

Even within the IT department, virtualization can sometimes bruise egos, says Schreck. "Virtualization cuts across ownership boundaries," he says, leading each group to compete for resources and campaign for its own services. A related approach to virtualization is grid computing, in which multiple servers are joined together not as a single virtual machine, but as a coordinated set of computational engines, like a yoked team of horses.

Merrill Lynch & Co. has recently deployed a grid for its derivatives business, reducing the number of servers needed to handle the same computation load. "If there's excess capacity in the grid, you can provision it in minutes," says John Cislo, director of client infrastructure solutions. It makes sense to consider a grid rather than virtualization when your computations need to use full server capacity (not share it with others) and handle lots of floating-point calculations, which are common in engineering and financial analyses, he says.

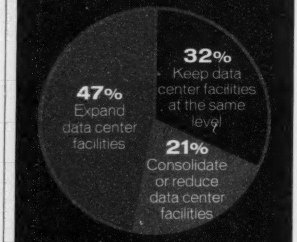
Deploying a grid raises the same political issues that virtualization raises, notes Cislo, because it, too, is a shared service. And grid computing comes with other issues. One is the need for a more homogeneous server environment, which can be hard to maintain as vendors change their hardware over time. Another is the need to deal with small, less established vendors, since the commercial versions of the technology are still new. Third, setting up a grid is expensive, so it requires that you convince management that the investment will pay off as more business units take advantage of the system, says Brad Kurtzman, director of equity-linked products, the first business group at Merrill Lynch to use grid computing.

Automation: Promises

Automation is another area where new technology can help make the data center more efficient. Imagine that each time an employee is hired, is promoted or leaves, all application and network access systems are updated to reflect changes in permissions or roles. Or that as storage is added to the data center, application and file servers, disaster recovery systems and storage management policies adjust to use the new storage capacity. Or that as application servers are added, they could simply be attached to the network, and the operating system, applications and network connections would be installed automatically.

GETTING BIGGER

During the next three years, my company plans to:



BASE: 389 IT executives

SOURCE: EXCLUSIVE *COMPUTERWORLD/CIO* SURVEY CONDUCTED MAY 2006

COSTS AND CAPABILITIES

What are the three main reasons for making changes to your company's data center facilities?

To reduce operational costs through efficiency and automation	83%
To bring in new capabilities or enlarge its mission for roughly the same overall costs	60%
To consolidate multiple data centers for economies of scale and centralization	37%

BASE: 389 IT executives, respondents could choose their top three

SOURCE: EXCLUSIVE *COMPUTERWORLD/CIO* SURVEY CONDUCTED MAY 2006

Today, each system must be updated by an IT staffer, even if you have a centralized management console application to simplify the effort.

However, automation technology is even less mature than virtualization, reports Data Dimension's Dominick. Although many automation tools are available, they tend to focus on specific subsystems, requiring IT staffers to manage their interactions and often develop their own tools to integrate them, says Forrester's Schreck. "You need to get the integration before you can provision," he says. The result: "Maybe about 15% of North American firms have started to make this transition," Schreck notes, referring to an unpublished Forrester study. According to the *Computerworld/CIO* survey, 40% or more of respondents identified immaturity in each of four automation-related technologies as barriers to achieving a lights-out data center: policy-based, self-configuring systems for automated system adjustments; management and monitoring tools for security and compliance needs; standardized interfaces so management tools can work together; and support desk and system management tools that can work together automatically.

As automation products improve, this should change. "Today, they're mostly point tools, but I see holistic umbrella tools emerging," IDC's Bailey says. "We see the ramp-up in the next 18 to 24 months." In the meantime, enterprises should standardize their IT processes using techniques such as IT Infrastructure Library and Six Sigma to ensure that the data center has the right processes to get ready for automation, Schreck says.

Automation: Challenges

As with virtualization, automation requires a more skilled, expensive IT staff. Troubleshooting becomes exponentially more difficult when the server that has failed is actually spread across several physical servers. And optimizing or just fixing problems in automated systems that interact with other automatic systems becomes quite difficult because so many decisions and assumptions are now hidden inside the software.

"The skill sets change dramatically," says Coldwater's Carper. He's had to change his IT staff mix by hiring more-skilled, process-oriented staffers to focus on core systems management and automation so that errors and inefficiencies don't ripple throughout the data center. He also has automated provisioning of new hardware and software wherever possible, so the IT staff doesn't spend nearly as much time loading software onto machines. For example, if a laptop needed to be replaced, Coldwater's IT staff would just drop off a new system to the user. All the user data, as well as applications and network access permissions, would be automatically restored over the network in an hour or two. That's possible because Carper invested in automated backup and provisioning systems. After revamping Coldwater's data center over the past two years, "we have fewer,

CONTINUED ON PAGE 8

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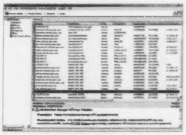

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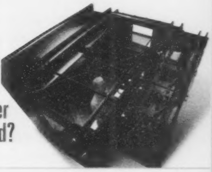

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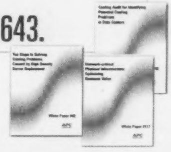

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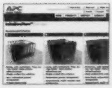

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CIOs Feel the Heat

The next-generation data center shares two problems with its elders: It's hungry, and it runs hot.

From the mainframe on, data center managers have struggled with power and heat. Huge quantities of equipment require huge amounts of power. And computers generate significant heat, which increases as equipment gets smaller and denser. And that means more air conditioning and even more power.

Whether an enterprise is trying to free up real estate or trying to cram more equipment into a growing company's existing data center, the result is the same: more power needed, more heat generated.

There aren't many easy answers to these challenges. You can replace older equipment with higher-capacity, higher-performance equipment to at least stem the tide of power usage and heat emission. You can place equipment so that the devices that emit lots of heat have greater airflow or zoned air conditioning around them. Or you could alternate high-heat devices with low-heat ones, a strategy called "hot aisle/cold aisle."

New 30-plus blade servers generate so much heat that they are especially difficult to cool, says John Webster, senior analyst at consultancy Data Mobility Group. Pegasus Solutions CIO Mike Kistner had to use the hot aisle/cold aisle approach with his blade servers. Where possible, he's shifting to compute appliances, a type of multiprocessor device from Azul Systems Inc. that emits much less heat and takes less power. "We save thousands of dollars a month in electricity," Kistner says. But the compute appliance is designed for Java applications, so blade servers are still needed for the majority of Pegasus' enterprise software.

Corrections Corporation of America CIO Brad Wood built a new data center three years ago, with one goal being to avoid heat problems through physical design. "But we still have hot spots," he says. "The new boxes are killers for heat."

In a return to the mainframe past, data centers may need to use water cooling for the new generations of dense, rack-mounted servers and storage systems, says Randy Mott, CIO of data center equipment vendor Hewlett-Packard Co. But that presents another problem: "Lots of people don't have the plumbing in their data center," says IDC analyst Michelle Bailey. "And they are often concerned with leaks destroying the equipment." So CIOs and CTOs will have to keep their cool as best they can.

– GALEN GRUMAN

CONTINUED FROM PAGE 6

more highly talented people," he says. But the next-generation data center's demand for a more highly skilled IT workforce presents a staffing risk for CIOs moving in that direction.

Consolidation

The third leg of a next-generation data center technology strategy is consolidation. Multiple data centers can eliminate redundancies in equipment, staff and telecommunications technology. Consolidation within a single data center — reducing the range of equipment used and using higher-capacity equipment — achieves similar results by simplifying technology deployments and process changes.

Incremental technology advances, such as the use of blade servers, denser storage and multiprocessor CPUs, have made it easier to consolidate data centers by increasing capacity in the same or less physical space. "We get economies of scale, with no additional management needed," says Mike Kistner, CIO of Pegasus Solutions Inc., a payments and reservations service provider for hotels.

The maturation of remote monitoring and management tools lets central IT staff manage satellite offices confidently, notes Data Dimension's Dominick. "But be careful not to get too much physical distance between the data center and the remote staff," he warns. For example, if a remote office has its own disaster recovery application running on a local server, you'll need to dispatch someone to fix it if it fails. Remote tools can handle standard processes and technologies, but specialty equipment and software will usually require someone at the scene.

As data center technologies shift and as IT becomes more tightly linked with the business, **skill sets in the data center will also evolve**. IDC believes that automation will moderate the number of systems administrators required, while **business analysts will play an increasingly important role**.

"It's expensive to consolidate, so you need executive buy-in," CCA's Wood cautions.

Lights Out: The Vision

Although vendors like to use the phrase "lights out" to describe the vision of future data centers, a fully automated, self-adjusting data center with no people (à la the HAL 9000 of *2001: A Space Odyssey*) remains more fiction than science.

What will happen is that data centers will become increasingly automated and self-managing as virtualization, automation and monitoring technologies mature, letting computers respond to typical situations based on human-created scenarios. But people will still be needed to handle the unexpected and develop the improved processes and business applications that will keep the enterprise moving forward.

"There's no standard framework" for a next-generation data center, says Dominick. So the CIO still needs to figure out how to implement still-evolving technologies, rework and streamline the IT processes, and get the right skill mix in the organization to get closer to that lights-out vision. ◆

Gruman is principal of The Zango Group in San Francisco and a regular contributor to CIO *magazine. Contact him at ggruman@zangogroup.com.*

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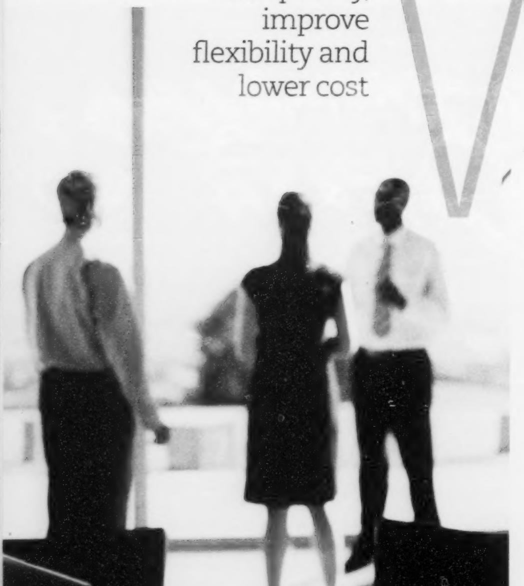

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Register for your advance discounted copy of the upcoming book on SOE, *The End of Business as Usual*, co-authored by Capgemini's Andy Mulholland, Intel's Chris Thomas, and KurMeta's Paul Kurchina. Go to *www.nextgenerationinsights.com* and sign up today.

WITH THE convergence of high-performance computing and data analysis, global high-speed communications and even advanced sensing, the time is right to:

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Global organizations must be clear-thinking and well informed to make the right decisions and take advantage of this next wave of information-age business transformation. In particular, enterprises must make a fundamental shift from the "business as usual" of the past to a future built on innovative service-oriented business processes that are supported by a modular, manageable IT infrastructure. In fact, by becoming a Service-Oriented Enterprise (SOE), global organizations can reorganize and execute to become faster and more responsive to changes in the marketplace.

SOE is largely about how the business organizes itself around the use of technology. Above all, SOE focuses on the business imperative and offers opportunities to approach business issues in a different way.

No More "Business as Usual"

To create SOE road maps that promise an end to "business as usual," Intel, the worldwide leader in silicon innovation, is working together with Capgemini, recognized for its thought leadership in service orientation.

In fact, Intel and Capgemini have found that organizations that successfully embrace change have learned a number of key lessons:

- **Valuable Services Must Cross Firewalls:** Don't keep services hidden internally. Put them in the hands of others in your enterprise.
- **Empower the Edge**: Provide services and tools to

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allow those close to customers and markets to innovate.

- **Innovate, Capture Value, Then Integrate:** Don't wait for end-to-end service enablement; do business now and improve infrastructure gradually.
- **Practice Safe SOA**: With service-oriented architecture (SOA), establish standards for security and operational quality, while still empowering innovation at the edges.
- **Dump HTML:** Use the web as a gateway to allow customers to find you. Then bring them into a better user interface to transact business.
- **Computers Serve Humans:** Optimize in every way possible to increase human efficiency.

At NATO, Thought Leadership, Supported by Enterprise Architecture, Brings SOE to Life

Capgemini uses the concept of the service-oriented enterprise to connect SOA technology with desired business change – not on a theoretical level but in terms of specific, achievable action. But rather than sell this as an abstract proposition to customers, the firm prefers to tackle business issues head on.

"In order to achieve real collaboration, it is essential that people, organizations and services work together seamlessly," says Olaf Kruidhof, Senior Systems Architect, NATO C3 Agency, one of Capgemini's customers.

When Capgemini brought its SOE vision to NATO, that organization's requirement was to boost interoperability. In order to meet and manage these requirements the organization adopted a services-oriented approach that was developed using NATO's own methodologies, along with best practice from Capgemini and other sources in industry and academia. All types of services are now included, ranging from operational and business information, to user/IS and technical infrastructure.

Built-in Capabilities

Success in applying these SOE lessons comes in part from building solutions on the right foundation. Just as SOA represents a new generation of software, Intel brings a whole crop of next-generation computing platforms to market that can amplify its advantages. This includes new mobile clients based on Intel® Centrino® Duo mobile technology. Notebooks and tablets based on this highly capable wireless computing platform can "empower the edge," where employees interact with customers.

Similarly, business desktop PCs with new Intel® vPro™ technology can provide lower TCO through built-in manageability and greater protection for business-critical data. Industry-standard servers based on the next-generation 64-bit Intel® Xeon® and Itanium® 2 processors provide the same high performance and scalability as client platforms from Intel—and they can scale dynamically.

> **"New Intel® platforms deliver enhanced manageability and hardware-based virtualization features that provide an ideal foundation for a Service Oriented Infrastructure on which to deploy SOA solutions."**
> **—Chris S. Thomas, Chief Strategist, Intel Corporation**

"New Intel® platforms deploying with enhanced manageability and hardware-based virtualization features provide the ideal foundation for a Service Oriented Infrastructure on which to deploy SOA solutions."says Chris Thomas, Chief Strategist, Intel Corporation.

Today, with industry analysts predicting service-oriented spending of more than $33 billion annually by 2010, it's clear that global organizations are focusing on new business strategies. The focus on SOE that Intel and Capgemini share is about building those new business strategies wisely, with an infrastructure that doesn't just fix the past but instead enables the future.

As Forrester puts it, "Capgemini uses the concept of the service-oriented enterprise (SOE) to stress the importance of achieving the desired business goals of business change. But rather than sell this as a proposition to customers, the firm prefers to tackle business issues and uses SOE and SOA frameworks and approaches in meeting those issues as a matter of course." *

"To become faster and more agile at responding proactively to change drivers, a business needs to have choices in how it supports the business change," says Capgemini's CTO Andy Mulholland. "This could be by outsourcing the processes, constructing a new capability internally, buying or building an application or any combination of these."

Claim the Future

Intel and Capgemini challenge business leaders and IT organizations to move beyond infrastructure concerns toward becoming a service-oriented enterprise. Learn how to take the next steps in this journey by visiting Next Generation IT Insights at www.nextgenerationinsights.com for valuable business and technical insights, real-world case studies, webcasts and more.

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*Forrester: *"Identifying Service Providers' SOA Value" by Andrew Parker, John Rymer and Caroline Hoekendijk, February 2006*

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Finding tools to virtualize and consolidate your data center is easy. What's harder is finding the tools to properly manage this new virtualized world.

Management: The Missing Piece *of the* Puzzle

BY ROBERT L. SCHEIER

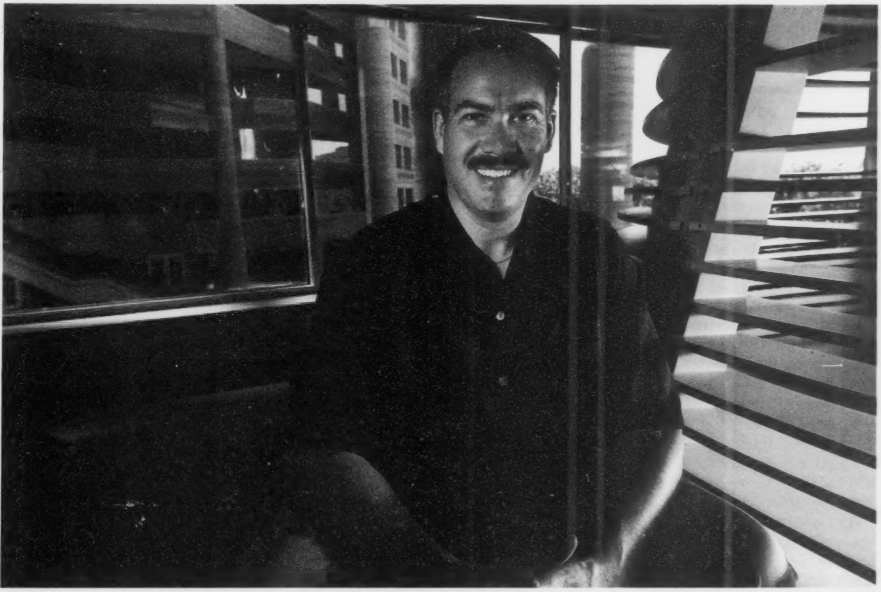
BUILDING the next-generation data center is one thing. Managing it will be another.

Much of the technology to virtualize and consolidate servers, networks and storage is here today or on the way. What will take longer, according to vendors, customers and analysts, is automating that technology to reconfigure itself so the most critical applications or database queries run the fastest. Only when that automation is possible will data centers deliver on the promise of lower-cost IT capacity that businesses can tap, like a utility, as it's needed.

IT managers face "a big spider web of understanding your transactions, and where they're running, and how they're running," says an IT manager at a national retail chain who requested anonymity. For example, "I just did a big purchase of an IBM enterprise service bus. Now, I've got to see inside this service bus, and see where the holdup is. Is it application code at the Web services level? Is it MQSeries [messaging middleware]? If you don't continually try to automate, [this work] will bury you."

Bill Randall, director of MIS infrastructure at restaurant chain Red Robin International Inc., says he hasn't yet seen an automated tool "that's going to make a better decision than some of my engineers," especially when it comes to correlating information coming from different parts of the IT infrastructure. "I'm not seeing any tools out there that are able to sift through that amount of data" and automatically determine the root cause and proper fix for a problem, Randall says.

In fact, most of what research firm Gartner Inc. calls "real-time infrastructure" products are "specific to a particular problem, such as horizontally scaling applications for a particular platform, and have limited or no visibility of the end-to-end business transactions," according to a March 2006 report. The key standards and supporting products to enable true end-to-end dynamic management are at least several years away, say cus-



PATRICIA BARRY LEVY

> “[I haven’t yet seen a tool] that’s going to make a better decision than some of my engineers.”
>
> **BILL RANDALL,** DIRECTOR OF MIS INFRASTRUCTURE, RED ROBIN INTERNATIONAL INC.

tomers and industry observers.

The obstacles facing every customer will be unique, and so will the timetables companies follow for successfully managing the next-generation data center. Here are some of the most common challenges and how some key vendors are trying to meet them.

Beyond Cost Cutting

What’s been driving the move to the next-generation data center? So far, it’s mostly been cost savings. Companies still recovering from the dot-com bust are looking for ways to postpone or avoid the purchase of new servers, storage or software and minimize the size of their IT staffs.

For example, Randall says EMC Corp.’s VMware virtualization software has cut the time needed to deploy a new server at Red Robin’s Greenwood Village, Colo., headquarters from three to four hours to 20 minutes. Configuresoft Inc.’s Enterprise Configuration Manager (ECM) is also saving him four to six person-days per quarter by automating the quarterly reports he must provide to department heads about which users have permissions for accessing or changing data in various systems.

At Polaris Industries Inc., a manufacturer of snowmobiles, all-terrain vehicles and motorcycles in Medina, Minn., capital budgets have been decreasing every year. “We can’t add staff, but there’s more pressure to add services,” says Dean Buker, manager of network and systems operations. By virtualizing Hewlett-Packard Co. server blades with VMware, since early 2005 Buker has slashed the number of physical servers at Polaris from 120 to 70 and reduced the annual purchases of new servers by about 70%.

The corporate investment bank at Wachovia Corp. last year began using DataSynapse Inc.’s FabricServer for its transaction-oriented applications. Tony Bishop, senior vice president and director of product management, says FabricServer has delivered 50% better performance at an 85% cost savings. It has also allowed Wachovia to reallocate processing power among multiple data centers in multiple locations as the trading day progresses around the world.

As impressive as those numbers are, companies are demanding more than just savings. They want data centers to provide the flexibility and adaptability that will improve customer service and speed the introduction of products and services. In a May 2006 *Computerworld/CIO* survey, nearly as many IT executives cited new capabilities as the main reason to change their data centers (60%) as those who cited cost cutting (63%).

Data center managers are looking toward virtualization, consolidation and automation. Virtualization means making multiple virtual devices appear as a single logical device, or making a single physical device function like several physical devices. Consolidation means reducing the types or amount of hardware or software in the data center to cut real estate, power, licensing or management costs. Automation means reducing the need for human intervention to manage, troubleshoot or optimize the data center.

In general, consolidation and virtualization are easiest to achieve, while automation — specifically, automated management — is toughest.

Virtualization Buffet

There are several flavors of server-level virtualization, and that market is dominated by VMware. The obvious cost benefits have resulted in the explosive growth of VMware, Microsoft's decision to include a hypervisor in its next-generation Longhorn server and the development of the open-source Xen hypervisor for Linux.

IDC analyst Stephen Elliot and other observers say that as virtualization becomes ubiquitous, what will distinguish virtualization software is its ability to provide security, management, provisioning and the recording of CPU usage. These records will allow IT to charge business units for the resources they use — and to measure the value IT delivers to the business.

Among the companies offering such services are Marathon Technologies Inc., whose software links multiple Windows servers in a virtualized, high-availability environment; Leostream Corp., whose software manages server virtualization products from VMware and Microsoft; and PlateSpin Ltd., whose PowerConvert product automatically distributes servers and data among Windows virtual servers.

In June, an upgrade to VMware's server virtualization software added new power management capabilities, a distributed file system that allows users to pool heterogeneous storage arrays into virtual volumes and a distributed resource scheduler that automatically redistributes virtual machines among the physical servers as application demands change.

PolyServe Inc. in Beaverton, Ore., performs virtualization at the file-server level with separate file-serving and database "utilities." With PolyServe, says CEO Mike Stankey, "customers can literally drag and drop the database onto a bigger or smaller server" and build policies dictating when performance slowdowns will trigger such a move. PolyServe complements, rather than replaces, processor-level virtualization such as that provided by VMware, he says. That's because VMware and similar virtualization products don't automatically reconfigure those applications so backup and other functions work in the virtualized environment.

HINDERED BY MANAGEMENT

The lack of which technologies currently limits your ability to have a "lights out" data center?

Interface standards/systems that let various management tools work together automatically	45%
Management and monitoring tools to identify/address security or compliance issues	44%
Policy-based, self-configuring systems to handle routine adjustments automatically	42%
Support desk and system management tools that work together automatically	40%
Remote access and management tools for IT staff, to allow remote/off-site management	34%

BASE: 389 IT executives; respondents could choose all that apply

SOURCE: EXCLUSIVE COMPUTERWORLD/CIO SURVEY CONDUCTED MAY 2006

SERVER SQUEEZE

My company is currently involved in consolidating:

Hardware servers (through clusters, blade servers, multicore hardware)	66%
Storage through virtualization or other consolidation	53%
Networks (such as adding VoIP to an existing network)	43%
Applications (attempting to reduce the number of licenses or seats)	42%
Physical data centers	32%
None of the above	14%

BASE: 389 IT executives; respondents could choose all that apply

SOURCE: EXCLUSIVE COMPUTERWORLD/CIO SURVEY CONDUCTED MAY 2006

Work in Progress

Storage virtualization promises savings by increasing the utilization of existing disk space and easier management of fewer disk pools, as well as business benefits through improved information sharing. However, a lack of standards and immature technology have limited its deployment. Many storage virtualization products work best or work only within arrays from a single vendor.

Virtualized servers sometimes don't work well with virtualized storage because currently, every virtual machine in a server must share the same external storage resources and a single set of addresses in a Fibre Channel storage-area network. This makes it harder for administrators to create separate zones for development, test and production virtual machines; prioritize SAN resources for mission-critical applications; and quickly move a virtual server to another physical machine in case of a hardware failure.

A new standard called N-Port ID Virtualization, or NPIV, allows a single host bus adapter (HBA) to use multiple addresses within a storage network. Now available only on IBM zSeries mainframes, HBA vendor Emulex Corp. is working to expand NPIV to other platforms.

Some virtualization is possible at the network level through products such as Cisco Systems Inc.'s Catalyst Switching Series. These products allow the partitioning of a single physical network into many virtual networks, which can be configured for the performance or security needs of specific applications or networks.

Where's the Holdup?

One of the big challenges is looking deep within complex, multitiered or service-oriented applications to see what hardware or software is causing a slowdown. CoreFirst Transaction Workload Management software from OpTier Ltd. in New York is one of the strongest players in this field, according to several customers, who declined to be identified.

Unlike other products, OpTier's

Data Center Technologies: What's Next?

	SERVERS	NETWORKS	STORAGE
AUTOMATE	Some tasks, such as restarting failed processes, can be automated through existing management tools but might require scripting. Management vendors are still building capabilities to automate configuration and network/storage connections in virtualized environments.	Simple network management and monitoring tools are common, but managers are reluctant to give up control for higher-level changes.	It's relatively easy to automate the provisioning of volumes and logical unit numbers in a single-vendor environment, but it's much harder to do so over multivendor arrays. It's also difficult to accomplish across storage types (file vs. block).
VIRTUALIZE	Processor-level virtualization is becoming a commodity; growth is in tools to provide security, management and auditability for virtual server environments.	Many vendors provide virtualization at the network level (such as virtualized file systems). Virtualization of the network itself (such as virtual LANs) has been maturing for several years.	As with automation, virtualization is much easier in single-vendor environments than across arrays from multiple vendors or across network protocols.
CONSOLIDATE	Virtualization reduces costs by up to 85% by eliminating underutilized servers and trimming licensing and management costs.	Many users consolidate voice and data networks using VoIP, but virtualization is used more to tune virtual networks for specific applications than to reduce bandwidth.	Rising storage capacities make consolidation easier, but management tools are still lacking.
FUTURE TRENDS	Virtualization and consolidation will become even more common over the next 12 to 18 months as server vendors roll out more-powerful, multicore processors. Vendors will work to integrate server, network and storage management in fewer consoles. True "single-console" management across vendors isn't expected until at least 2008.	Vendors will work toward more automated and policy-based management that links network performance to business needs. Initial products are available now; increased adoption is expected over the next two to three years. Vendors will also work to integrate server, network and storage management in fewer consoles. True single-console management across vendors isn't expected until at least 2008.	Over the next two to three years, vendors are expected to introduce software with improved abilities to automatically migrate storage among tiers and manage performance to meet business service-level agreements. Increasing adoption of the SMI-S interoperability standard will slowly ease integration woes. Vendors will work to integrate server, network and storage management in fewer consoles. True single-console management across vendors isn't expected until at least 2008.

CoreFirst examines queries within databases to find those that use too many CPU cycles, too much memory or too much of the server's I/O subsystem, says the IT manager at a leading retailer. It can also prioritize workloads so that a query from a cashier looking up the price for a product, for example, gets higher priority than a query about last month's sales.

A leading health care provider in the Midwest deployed CoreFirst to troubleshoot performance problems within a complex, fat-client customer-service application that gathers data from multiple other applications. "We can take our application and almost break it down by the business function" an employee is using, such as the time required to look up a customer record, says the company's director of technology support, who declined to be identified.

Virtualization may simplify some functions, but it complicates others, says Dennis Moreau, chief technology officer at Configuresoft. Configuresoft's ECM, for example, can help ensure that new virtual servers meet corporate and regulatory guidelines for security and access control, are properly configured, and have the proper versions of software and the appropriate security patches. By the middle of next year, Configuresoft plans to give users the ability to check the status and configuration of instances of an operating system that exist on a server but are not yet in operation.

The more tiers developers build into their applications, and the more data sources they touch, the more flexibility managers will want in changing — on the fly and automatically — the performance of those components so they better match business needs.

David Miller, a director in the technology and infrastructure practice at systems integrator Avanade U.K. Ltd., used PolyServe to reduce the number of "passive" (or hot spare) servers for a large database deployment from 500 to 125. PolyServe also helped reduce fail-over time from five minutes to 30 seconds. The next step, he says, is for products such as PolyServe to perform such fail-over automatically as applications require it, rather than requiring an administrator to initiate the change.

Systems administrators are reluctant to give up a lot of control to automated tools. Randy Wood, a technical support manager in BellSouth's Communications Systems Group in Atlanta, uses the Network Automation System from Opsware Inc., but only to view alerts from customer networks. "It's unlikely we would let the [software] just execute [a] change" without first contacting the customer, he says. A customer might have violated network routing policies, says Wood, but only to troubleshoot a problem — something the software would have no way of knowing.

The Value-Adds

Some companies turn to IT automation software not to manage their systems, but to monitor their compliance with regulations governing things such as access to critical data. That's the case at restaurant chain Red Robin, which uses Configuresoft's ECM to ensure the proper configuration of 45 Windows servers at its headquarters. The company also uses ECM to instantly change passwords in the service accounts in its Windows Active Directory domains, a process that used to take 48 hours, says Randall.

But it will be several years at least before a single "dashboard" exists, observers say. They advise IT managers to standardize the products they buy and the way they configure them to give automated tools a chance to work. ◆

Scheier is a freelance writer in Boylston, Mass., and a frequent contributor to Computerworld. *Contact him at rscheier@charter.net.*

Vendors Chase Data Center Space

The next-generation data center will require specialized technologies, as well as high-level management software for a unified view.

One of the stronger companies is **Opsware Inc.**, says IDC analyst Stephen Elliot, which has "done a good job in [the] niche market" of server and network configuration and provisioning. Another firm cited by Elliot and Gartner is **OpTier Ltd.**, whose CoreFirst "autodiscovers, tracks and monitors unique transactions" and enables policies that give specific transactions more access to CPU, memory or other sources, according to a March 2006 Gartner report.

Another firm cited by both research groups is **Cassatt Corp.** Gartner says its Collage software creates virtualized hardware and software resources running on Linux, Solaris and Windows and then lets administrators scale capacity as needed. Cassatt's focus is on scaling a specific layer of an application environment, such as the J2EE application server tier, according to Gartner, rather than on optimizing a specific function such as inventory lookups.

Splunk Inc. uses search technology to help IT managers find the causes of problems from unstructured data such as server and event logs, and integrates with CA's Unicenter NSM R11.

IBM is driving several key standards for capturing and sharing data about the IT environment, says Ric Telford, vice president of autonomic computing at IBM's Tivoli unit. They include the Solution Deployment Descriptor Standard, which describes the specifications for deploying an operating system, server or application; and Configuration Management Databases, which describe the state of all the components within the IT infrastructure.

Hewlett-Packard Co. has a proven set of management products and a large installed base with its OpenView management suite, says Elliot. It has also developed products such as Business Process Insight, which focuses on automation.

CA Inc. "has really put a lot of work into integration" within its Unicenter suite of management applications, Elliot says, "but with a recent spate of acquisitions" has yet more integration work to do.

BMC Software Inc. provides a number of infrastructure management tools, such as its BMC Virtualizer line, which provides automated, policy-based provisioning of additional capacity for applications running on virtual machines or physical servers.

EMC Corp., owner of VMware, has bought network manager vendor Smarts Inc. With its presence in large firms, EMC "is one acquisition away from changing the game for a lot of players," says Elliot.

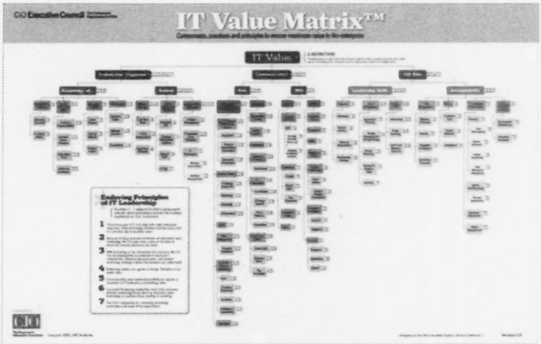
Microsoft Corp. is a "sleeping giant" – aggressive with rollouts "but late to the game in virtualization and still Windows-centric," he says. Microsoft is developing its own virtualization management software, code-named Carmine, says Eric Berg, a director in the Windows and enterprise management division. Next year, the company plans to release Systems Center Service Desk, which will link people, processes and technologies to solve problems, manage assets and provide change management.

– ROBERT L. SCHEIER

How do *you* maximize the value of IT?

IT is still one of the most misunderstood functions in business.
The CIO Executive Council, a professional community developed by CIOs, has focused its members' collective effort on this challenge. Their initiative has resulted in groundbreaking tools–the IT Value Matrix and Knowledge Center™–to help leverage the value of IT throughout the organization.

The IT Value Matrix illustrates the principles and practices essential to creating, identifying and communicating IT's value to the enterprise. Its online Knowledge Center provides best practices contributed by Council members, supplemented by case studies and how- to articles from *CIO* magazine that are grouped in categories that correspond to all the components of the Matrix.



Visit **www.cioexecutivecouncil.com/it_value** to get your own copy of the Matrix and to watch the IT Value webcast, presented by Agriliance CIO and Council member Steven John.

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To inquire about membership, visit www.cioexecutivecouncil.com.

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Research Insights

The next-generation data center is clearly a system in flux. In a joint *Computerworld/CIO* survey, close to half of the respondents reported that their companies will expand their data facilities within the next three years, and almost one quarter said they are planning to reduce or consolidate their facilities. Most are seeking to cut costs (63%), but an almost equal number expect more: They want their data center overhauls to bring new capabilities without increasing costs (60%).

IT managers also want things simpler. When asked about consolidation techniques, respondents said they expect server virtualization and standardized hardware to make their data centers simpler to manage (66%) and more energy-efficient (48%).

Yet there are worries, too: 44% said they are concerned that consolidation won't reduce costs but will shift expenses to other areas. And the same number of respondents worry that the skill set needed to manage consolidated data centers will actually expand. ◆

*Respondents could choose all that apply.

SOURCE: EXCLUSIVE *COMPUTERWORLD/CIO* SURVEY OF 389 IT EXECUTIVES, CONDUCTED MAY 2006

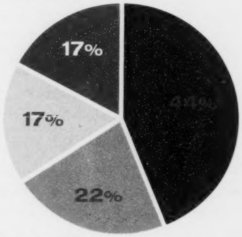
Expert on Staff

Which of the following statements describe your current data center environment?*

IT staff is composed of specific experts for most areas.	**52%**
IT staff is composed mainly of generalists who can handle multiple operations.	**46%**
Data center relies heavily on homogeneous environments to reduce complexity.	**41%**
Data center is largely automated (lights-out); IT staff handles exceptions vs. routine maintenance.	**34%**
Data center relies heavily on heterogeneous environments to deliver best-of-breed functionality.	**24%**
Data center is broadly distributed and/or managed significantly by remote staff or providers.	**18%**
Data center relies extensively on virtualization to reduce use of proprietary hardware.	**15%**
Data center is outsourced to one or more third-party hosts.	**15%**

Mainframe, Be Gone

Mainframes once dominated data centers, but their importance has decreased in recent years. Which of the following most closely describes the outlook for your mainframe environment over the next three years?



■ We will completely eliminate our mainframe environment.

▨ The number of MIPS we have will remain steady.

□ The number of MIPS we have installed will decline from current levels.

■ We will grow our MIPS primarily due to new applications.

IT Takes the Lead

Which groups are involved in the space planning for your company's data center?*

IT	**72%**
A facilities committee/ physical plant committee	**36%**
Executive board	**17%**
All of the above	**28%**
Other	**3%**

Simplicity, Please

Many enterprises are told to consolidate their data centers to reduce their scale and operational costs using techniques such as virtualization and standardized hardware. If you were to consolidate your data center, what outcomes would you expect?*

The data center will get simpler to manage.	**66%**
The data center will become more energy-efficient.	**48%**
The data center will need less hardware.	**47%**
The data center will require fewer staff resources.	**47%**
The data center will get smaller.	**24%**

Shifting Burdens

If you were to consolidate your data center, which issues would be of greatest concern?*

The skill set needed to manage the data center will increase.	**44%**
The overall data center cost won't change significantly but will shift from one area to another.	**44%**
The consequences of system failure increase unacceptably.	**42%**
Data center productivity drops.	**20%**

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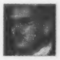
8:00am to 8:30am	**Registration and Networking Breakfast**
8:30am to 8:45am	 **Introduction and Overview** Don Tennant, Vice President and Editor in Chief, Computerworld
8:45am to 9:30am	 **Moving Towards the Agile Enterprise** Michael Hugos, Fomer CIO, and Author of *Essentials of Supply Chain Management* and *Building the Real Time Enterprise: An Executive Briefing*
9:30am to 9:45am	 **IT End User Case Study: Maryland Automobile Insurance Fund** Cindy Hughes, Chief Information Officer and Director of IT, Maryland Automobile Insurance Fund (MAIF)
10:00am to 10:15am	**Refreshment and Networking Break**
10:15am to 10:45am	**IT End User Case Study: Motorola** Toby Redshaw, Corporate Vice President of IT Strategy, Architecture and eBusiness, Motorola
10:45am to 11:15am	 **IT End User Case Study: TD Ameritrade** Gary Greenwald, Chief Technology Officer, TD Ameritrade
11:15am to Noon	**Panel Discussion** Moderator: Don Tennant, Vice President and Editor in Chief, Computerworld

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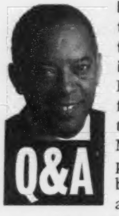
Symantec Turns to Innovation As Microsoft Takes on Security

BY ROBERT McMILLAN
CUPERTINO, CALIF.

SYMANTEC CORP. has had a bumpy ride this past year, closing one of the largest software company acquisitions in history — the $10.2 billion purchase of Veritas Software Corp. — and facing executive departures and a company reorganization. But perhaps the most serious problem facing CEO **John Thompson** is a formidable new competitor: Microsoft Corp. In an interview at Symantec's headquarters here, Thompson talked about his plans to take on Microsoft in the security software business.

Where worries you most about competing with Microsoft? I'm not worried about Microsoft at all. Let's be clear about that. If anything, my focus is on making sure we can deliver the level of innovation and the level of visibility or of capabilities that we always have. And to the extent that Microsoft plays fairly, there is a level playing field. If they do something that is unfair, clearly, we will be watching, and I'm sure others will as well. Microsoft is synonymous with a lot of things in the software and technology industry. Security is not one of them. And they've got a long way to go to demonstrate not only that capability, but to deliver and build a reputation of being able to support a vast array of users in that regard.



Hasn't Microsoft been talking about security for some time, at least in its marketing efforts? I think that's good for the whole industry, [as is] the fact that Microsoft is going to put enormous money behind raising the awareness that people have that they need to secure their connected experience. That's good for Microsoft, but that's [also] good for us. That's good for the world at large.

Will you use partnerships as part of a strategy to compete? Well, I would argue that the most successful defensive battle against Microsoft was Intuit. Clearly, Intuit doubled down and said, "Look, we're going to outinnovate Microsoft. We're going to run harder than they are to deliver a series of capabilities that are very compelling to our user base." And guess what? Microsoft had to acquiesce and work somewhere else.

When are you planning to deliver Norton 360, Symantec's upcoming competitor to Windows Live OneCare? It's less about when the code is going to be ready. When's the right time to launch the product? The code is still targeted for being done in September. We'll do our beta program this summer. Based upon the feedback we get there, we'll see whether we meet the current target.

Are you concerned about spyware at all? Spyware is on my mind. People who put software on your machine to track activity that you're engaged in while you're using your machine, that's on our mind. [Spyware] undermines confidence that users have about operating in the connected world. ▸

McMillan is a reporter for the IDG News Service.

Cisco Unveils Several InfiniBand Products

Tools support Ethernet network interoperability

BY SHARON FISHER

Cisco Systems Inc. last month brought out several products, including an updated tool that can manage both InfiniBand and Ethernet networking technologies by incorporating code gained when Cisco acquired Topspin Communications Inc. a year ago.

Dennis Michael, manager of high productivity computing at the Center for Computational Earth and Environmental Science at Stanford University, said the new CiscoWorks LAN Management Solution (LMS) integrated package can help the university manage interoperability between its Ethernet and InfiniBand networks.

The new LMS package will help Stanford increase the size of its InfiniBand network, said Jerry Harris, a professor of geophysics and director of the center. It would not be practical to manage a larger cluster with the tools it has now, he said.

In addition, the new management software makes it more likely that other groups, such as the one working on an oil exploration project at Stanford, will move to InfiniBand, said Bob Clap, a research associate in geophysics at the university.

Cisco also released a new version of the CiscoWorks LMS network management software that supports the Topspin InfiniBand technology and new SFS 7000D Series InfiniBand double data rate (DDR) switches that improve InfiniBand performance.

In addition, Cisco released a new version of the Topspin InfiniBand operating system that adds security and management features found in Cisco's Internetworking Operating System Ethernet software. Cisco acquired the Topspin InfiniBand technology in May 2005.

William Hurley, an analyst at Data Mobility Group LLC in Nashua, N.H., said tools that can manage both Ethernet and InfiniBand technologies can allay user concerns about adopting InfiniBand.

Committed to Technology

Cindy Borovick, an analyst at IDC in Framingham, Mass., said the announcement demonstrates that Cisco is committed to the InfiniBand technology it acquired last year.

She added that InfiniBand technology still lags far behind Ethernet. IDC research found that sales of InfiniBand products totaled $120 million in 2005, compared with $818 million worth of 10 Gigabit Ethernet products, she said.

The SFS 7000D Series InfiniBand DDR switches, with the latest version of the Topspin operating system, will be available from reseller partners over the next 90 days. The CiscoWorks LMS software will ship this month for about $10,000 for 300 devices and about $25,000 for an unlimited license. ▸

IBM Easily Heads Top500 Supercomputer List

BY SHELLEY SOLHEIM

The Top500 list of the world's fastest supercomputers, released late last month, showed IBM's Blue Gene continuing to reign and Advanced Micro Devices Inc.'s Opteron processor powering more systems on the list than last year.

IBM's Blue Gene/L System, used at the U.S. Department of Energy's Lawrence Livermore National Laboratory, recently reached a Linpack benchmark performance of 280.6 trillion floating-point operations per second (TFLOPS) to easily top the list. No other system has yet passed the 100 TFLOPS mark.

IBM supercomputers accounted for about half of the list, with Hewlett-Packard Co. occupying nearly a third.

The Top500 Supercomputer Sites list is compiled by supercomputing experts Jack Dongarra at the University of Tennessee, Knoxville, Erich Strohmaier and Horst Simon at the National Energy Research Scientific Computing Center at the Lawrence Berkeley National Laboratory, and Hans Meuer of the University of Mannheim.

Fewer Changes

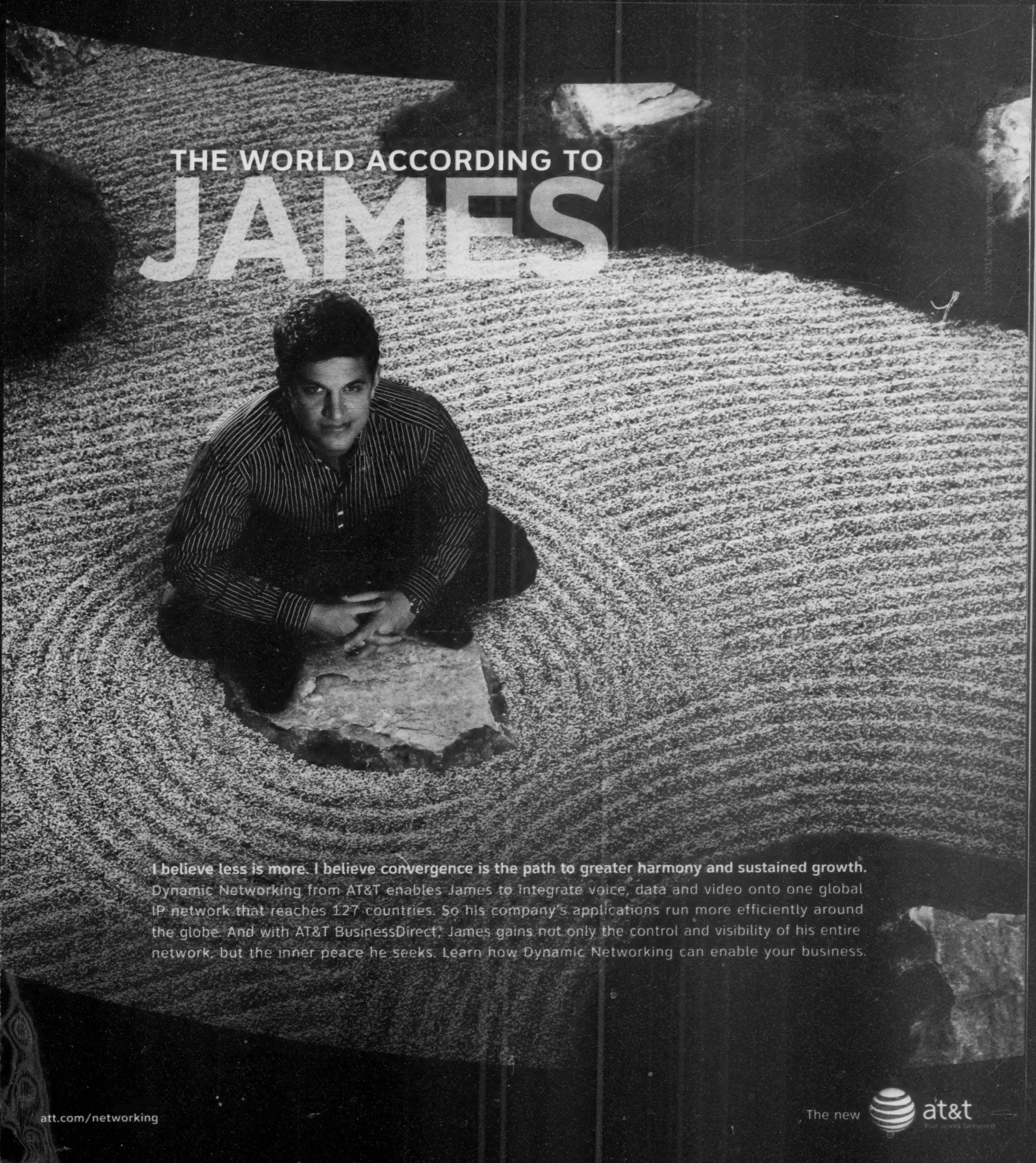
The Top500 list, known for its rapid turnover, showed fewer changes than usual this year. Some 158 systems were bumped from the latest list, compared with more than 200 systems displaced in the June 2005 list.

But in the fast-paced world of high-performance supercomputing, no systems maker can rest on its laurels for long.

"The thresholds to get into the top 50 move fast; machines are there one day, gone the next," said Herb Schultz, manager for IBM's Blue Gene. "It's no secret Blue Gene has been in the market for a little while and we're looking at ways to make the chips faster, get more chips on a core and do a faster job of interconnecting nodes," Schultz said.

Among other trends on the list: Intel Corp. microprocessors powered 301 of the systems, down from 333 last year, while AMD's Opteron processors gained some ground by running 81 systems, compared with just 25 one year ago. ▸

Solheim is a reporter for the IDG News Service.



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Users Struggle on Road to Cisco Certification

The testing is a rite of passage that calls for long preparation by engineers

BY MATT HAMBLEN

IN A dimly lit hallway of the cavernous Las Vegas Convention Center late last month, three Cisco Systems Inc. customers were fretting over a networking certification exam they had just finished.

"Dang, it's like finals week at college," said one man. A woman in the trio shook her head; the second man in the group groaned. They turned to walk slowly out of the convention complex into the 105-degree Vegas afternoon, arms wrapped around one another's shoulders in consolation.

Taking a Cisco certification exam is serious stuff.

The winners get a plaque and a Cisco Certified Internetwork Expert (CCIE) identification number for successfully completing the toughest level of tests; they can use that number on business cards and résumés to enhance their earning potential. The losers — historically a significant majority of test takers — are sometimes out more than $10,000 for travel, books, preparation classes and the testing fee, according to several attendees at Cisco's Networkers 2006 user event.

The event featured dozens of intense training sessions on the latest Cisco hardware and software, as well as a keynote address by CEO John Chambers. But the main event for thousands at the conference was the chance to take a standardized certification test.

Jon Campbell, CIO at FirstHealth of the Carolinas Inc. in Pinehurst, N.C., said he had been prepping all week in his hotel room for a CCIE test on network security.

"The tests are tough, and the ones who pass are really the crème de la crème," said Campbell, who has taken certification tests from three other major vendors but found Cisco's to be the toughest by far. He should know. After passing an earlier Cisco certification written exam, Campbell failed the lab test several weeks later. "I thought that I had it after the written, but then I took the lab," he said. "Oh boy."

A Cisco Web site recommends using seven textbooks to prepare for the two-hour written CCIE security exam. For the lab test, the online testing rubric lists more than 100 devices, software and security attacks that engineers must be prepared to troubleshoot.

A Cisco spokeswoman said that 2,808 people took tests at Networkers, paying fees up to $350. Many who preregistered for the test were able to take it for free. The written test is followed by an eight-hour practical lab test, which takes place at a separate location. CCIEs must take the written test every two years to stay qualified; they need to pass the lab test only once.

Several engineers taking last month's exam said reaching the CCIE level can lead to better job assignments, pay raises and perhaps an easier pathway to another job, because managers understand the value of the certification.

Cisco Certification

- About 12,000 people take the written exam every year.
- Around 9,000 people take the lab test every year.
- About 26% of those who have taken the written test since 1993 have passed.
- About 26% of those who have taken the lab test since 1993 have passed.
- Today, there are fewer than 14,000 CCIEs worldwide.

SOURCE: CISCO SYSTEMS INC.

Jason Witty, director of IT for Southern Wine and Spirits in Miami, said he recently opened a new warehouse with wireless and other communications technology with the help of a CCIE assigned to the project by IBM under a consulting contract. The CCIE was able to train technical staffers and helped prepare the warehouse launch, Witty said. "He was a lifesaver," he added.

Some engineers at Networkers avoided the exams but still took advantage of the courses. Franz Hufnagl, network systems manager in the Stanley, N.C., office of Julius Blum Inc., a maker of cabinet hardware, said he probably would never take a CCIE exam but chose to attend Networkers for the high-quality courses. The native of Austria said that in much of Europe, certifications aren't as widely revered as they are in the U.S.

In fact, he suggested that some companies may be urging workers to get certifications in the hopes that they will get special consideration from Cisco, such as having their calls for help get answered more quickly.

Wu Zhou, an analyst at IDC, said the certification programs are at the center of Cisco's highly profitable services division, which in the last quarter brought in more than $1 billion in revenue with a gross profit of 68%. Cisco customers who take certification classes are more likely to fix their own problems, reducing Cisco's services costs, Zhou said, noting that "services at Cisco are highly leveraged." ▸

CA Unveils Bundle to Automate ITIL Process

BY MATT HAMBLEN

CA Inc. late last month brought out a package of software, services and training programs to help implement best practices for managing IT shops under the Information Technology Infrastructure Library (ITIL) framework.

The new CA Service Management Accelerator offering aims to formalize and expand CA's ITIL-related products and services, said David Hurwitz, vice president of product marketing for business service optimization. "CA customers want to move up the ITIL maturity curve more than ever. ITIL is very hot right now," Hurwitz said.

The U.K. Office of Government Commerce developed the ITIL model in the mid-1980s. ITIL contains standard descriptions for key processes needed to improve IT service management, but it does not offer ways to deploy the processes, Hurwitz said. "The approach at CA is that automating ITIL is the quickest route to ROI," he added.

Two CA customers said they have embraced ITIL best practices and are glad to see CA move to further the philosophy, but neither plans to immediately implement any part of the new bundled offering.

Fran Findley, a project management analyst at MultiCare Health System, said that when the Tacoma, Wash.-based health care provider picked CA's software three years ago, it was "the perfect time to change the culture around IT in line with ITIL." MuitiCare's set of CA applications, including the Unicenter Service Desk offering, works well within the ITIL model, said Robyn Brooks, an IT manager at MultiCare, which runs three hospitals and 60 clinics.

"But we're still in our infancy," Brooks said. Eventually, cost savings in IT investments will be a byproduct of the ITIL effort, she said.

Daren Thayne, chief technology officer at MyFamily.com Inc., said the Provo, Utah-based company has used ITIL to define IT management best practices, and one result has been a change in the way IT teams are structured.

"CA has provided us with all the solutions and support we need to automate these essential ITIL processes," he said in a statement.

MyFamily.com uses CA tools to help manage about 4,000 servers that provide digital census information to the public for a fee, said Eric Martineau, vice president of Web operations at the company, which provides online genealogy tools, among other offerings.

New Software Included

In addition to bundling existing software, services and training, the CA Service Management Accelerator offering includes a new software product, Configuration Management Database r11, which ships in August, Hurwitz said. Pricing has not been announced. The new tool will work within the existing CA Management Database r11 to consolidate disparate sources of IT-related data and present graphical views of configuration information on servers, switches and even applications, he said.

The bundled offering also adds 14 ITIL training programs to the four now available, Hurwitz said.

In general, the ITIL framework has been hard for businesses to implement, and CA's Accelerator will help companies "do things themselves" rather than rely on consultants, said Rich Ptak, an analyst at Ptak, Noel & Associates in Amherst, N.H. Ptak said CA and BMC Software Inc. have been the market leaders in providing ITIL implementation aids. ▸

How paper from Oberkirch reaches the four corners of the globe. Without interruption.

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DON TENNANT

Beyond a Pulse

WATCHING Steven Tyler perform at the Boston Pops Fourth of July celebration on the banks of the Charles River last week had to give a lot of us fiftysomethings a boost. Say what you will about the 58-year-old lead singer of the rock band Aerosmith, but you certainly have to admit one thing: The guy's no geezer.

DON TENNANT is editor in chief of *Computerworld*. Contact him at **don_tennant@computerworld.com**.

In disturbing contrast, I've seen a lot of baby boomer IT professionals who appear to be slipping quietly into geezer mode. They look tired and act tired, and it's as if they've acquiesced to being sidelined by Generation X or Y or Z or whatever generation is getting the buzz now. That's unfortunate, because the skills that these IT professionals have honed over the course of a quarter century or so are too critical to the health of the industry to be allowed to atrophy.

That's one of the conclusions I drew from the findings of our inaugural Vital Signs study in this week's issue (page 35). This quarterly online survey is a means of taking the pulse of IT professionals so we can better monitor the health of the industry that yields our livelihoods. And the results of this first one are telling.

The theme that resonated through the study is that good IT talent is getting harder to find and harder to keep. When asked to rate their ability to recruit key IT personnel compared with the same time last year, 41% of the respondents said it's more difficult, and only 10% said it's easier. One of the respondents said a posting on Monster.com that drew 500 responses within two days four years ago more recently drew only 40 responses after a week. Another lamented that he was getting a lot more qualified candidates coming in for interviews a year ago than he's getting now.

Clearly, these findings won't sit well with a lot of unemployed or underemployed IT workers who have been unsuccessful in matching their skills with the needs of employers that claim there's a scarcity of good IT talent.

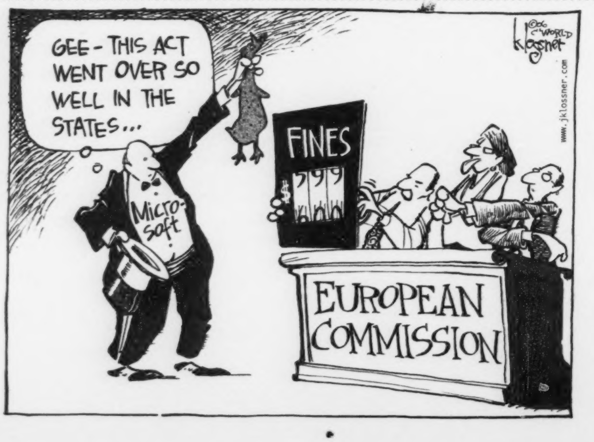
We've already gotten an earful from readers who responded to Management editor Kathleen Melymuka's interview last week with the author of a book that warns of a coming IT talent crunch ("Workforce Crisis," July 3, 2006). "Kathleen Melymuka has been drinking at the Kool-Aid trough of the tech executives and their lobbyists again," wrote one. "Are you kidding me?" asked another. "The only 'shortage' of computer professionals [is] for the jobs that don't pay enough to raise a family on." A third reader was more succinct in his assessment of the article: "Total crap."

In any case, I found it interesting that the book's author referred to older workers as an "untapped resource" and noted that those over 55 are the fastest-growing segment of the workforce. "The average employer will have to rely more on workers over 55," he predicted.

Whether or not you buy the forecasts of an increasingly tight IT labor market, a positive dimension in all this is that age may no longer be the inhibitor it has traditionally been thought to be. Just last week, *Computerworld.com* posted a story from *CareerJournal* about the growing number of online job sites targeting workers age 55 and older.

So to my fellow fiftysomethings who haven't gotten the message, I say knock off the geezer routine. No one's saying you should make a microphone stand adorned with long, colorful scarves a professional staple. But when it's encore time, give the crowd all you've got. This industry needs and deserves more than just a pulse. ▶

Don Tennant



MICHAEL H. HUGOS

The Value of IT Agility

IN MY previous column ("The Robust 80% Solution," June 5), I described a situation where a national restaurant chain wanted to increase sales and reduce costs by better matching its food inventory with local sales demand. I asked readers how they would use IT agility to enable the company to accomplish that goal.

Some readers were dubious about the wisdom of using agile IT methods to tackle such a complex business problem. With millions of dollars of inventory at stake and hundreds of variables and business rules to take into account, is it wise or responsible (even if it is possible) to act quickly and deliver only a partial solution?

MICHAEL H. HUGOS is a CIO at large and speaker. He is a member of the 2006 *Computerworld* Premier 100 IT Leaders class. His books include *Essentials of Supply Chain Management, 2nd Edition* (John Wiley & Sons, 2006). He can be reached at **mhugos@yahoo.com**.

I keep talking about IT agility because it works. There is real business value in quickly getting a system into production that works but covers only 80% of what is needed.

Here's what the team I assembled did for the client.

We used joint application design to pool ideas from business and technical people and agree on the functionality needed in the 80% system. Then we used process mapping to draw out existing workflows and design more efficient business processes.

Based on the process maps, we used data modeling to define the logical data model for the system database. Once we knew the new business processes and the data model, we where able to create a prototype of the user interface and the technical architecture for the system.

Inventory planners who would use the new system reviewed and tweaked the user interface design. Company IT people reviewed and tweaked the technical architecture so it conformed to company standards.

Then we applied object-oriented design and programming to configure the system from a set of reusable IT components: Web pages, a relational database, Web services for data transport, and spreadsheets and personal databases for data analysis and reporting. All these components are tied together with small chunks of program code that were installed and tested in a few weeks.

Version 1.0 of this system was in production within 30 days. We had decided on a 30-day schedule at the start of the project and then shaped the work to fit within this tight time frame. We couldn't do everything, so we focused on doing what would make the biggest impact in the time available.

The new system eliminates faxes and e-mails that inventory planners used to type into personal databases. It provides Web data entry so manufacturers and distributors in the supply chain can enter their own inventory numbers. Those numbers are then imported into a central database for the whole system. Inventory planners can download the data they need into their personal databases.

We provided a set of stored procedures to produce standard reports and graphs. Inventory planners can do their own ad hoc queries and load data into preformatted spreadsheets to conduct further analysis. They now spend most of their time doing high-value analysis and decision-making instead of data entry.

You may be thinking, "Well, gee, that's awfully simple." Yes, it is. That's why it's so effective. The system has been in use for several weeks now, and we are working on the next round of enhancements. We'll add automated data collection for those suppliers that want it. We'll provide data encryption and additional error checking. There will be enhanced performance-monitoring features too. The inventory planners have also put together a list of other features they want.

Again, we'll scope the work in this next round to fit into a tight time frame. The system practically grows before our eyes. And as it grows, it becomes more tailored to fit the exact needs of the people using it, even though it is being built from standard IT components.

This is agile IT. It delivers major business benefits at a fraction of the cost that would otherwise be incurred if the company were to go the conventional route of buying and installing a large, complex, all-in-one package.

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READERS' LETTERS

Media Sanitization In the NIST of Time

AN INTERESTING observation on the issues raised in the article "Utility's Disk Drives – and Data – Sold on eBay" [News, May 8] is that the National Institute of Standards and Technology has a free guide for media sanitization on its Web site, *http://csrc.nist.gov*. Look for Draft Guidelines for Media Sanitization, NIST Special Publication (SP) 800-88.

Rich Kissel
Information security analyst,
Ijamsville, Md.

Encryption Would Have Spared VA

I FIND IT reprehensible that this was allowed to occur ["Huge Data Breach Puts VA's IT Policies Under a Microscope," Page One, May 29]. Whole disk or simple file encryption is simple and inexpensive. I'm reminded of what Adm. Grace Hopper said long ago: "Someday, on the corporate balance sheet, there will be an entry which reads, 'information'; for in most cases the information is more valuable than the hardware which processes it."

Mike Prosser
Principal security analyst,
San Antonio

No, It Wouldn't

OK, SO Vista can encrypt data ["Microsoft Touts Vista Security Features," *Computerworld.com*, May 25]. However, the root problem is not that the data on the lost VA laptop was not encrypted, but that it was there to begin with. I doubt that Vista will have mechanisms to protect against people who don't think things through.

Protection by obfuscation is a bad approach. Every encryption can and will be broken eventually. Getting access to a lot of Social Security numbers and other personal information is enough of a reason for unsavory people to try to break it.

Frank Mogaddedi
Systems administrator,
Winston-Salem, N.C.

No Laughing Matter

LIKE DON TENNANT, I have been awarded the dubious title of "identity theft candidate." As for the May 29 *Computerworld* cartoon he wrote about ["Veterans Affair," Editorial, June 5], I have this to say: big deal. I think the overwhelming majority of vets who see the cartoon will do what I did – smile, or maybe chuckle contemplatively. Most of us know the cartoon wasn't about our honored dead; it was about nonexistent security and ideas that should have been implemented about 20 years ago.

Dave Whitney
Systems administrator,
Virginia Beach, Va.,
dave@davewhitney.com

……

I AM SURPRISED that anybody, veteran or not, would be offended by the cartoon in question. I'm an Air Force veteran, and I completely understood the point that was being made.

Les Sattazahn
System specialist, CNH,
New Holland, Pa.

……

I WAS DISTURBED by your tasteless cartoon using the Tomb of the Unknown Soldier. I was so disgusted that I did not want to even write to tell you about it. I am very happy that someone called you to the carpet on it.

What bothers me now is the fact that you wanted to somehow justify its publication based on your service. I served in war too, and this fact made the cartoon more tasteless to me.

I am not one who usually gets offended, and if offended I usually bite my tongue unless I feel it is truly appropriate. This is one of those times.

Please take your licks, and continue to cover what you do best: the business of IT.

John Yeary
Senior enterprise architect,
AGFA Healthcare,
Greenville, S.C.,
john.yeary@agfa.com

All or Nothing

THE OHIO UNIVERSITY Alumni Association called me on May 15, soliciting funds ["Ohio University Reports Two Separate Security Breaches," *Computerworld.com*, May 3]. I requested that my Social Security number and birth date be removed from the alumni database.

The call center supervisor said they could not selectively remove some of my personal information; they could only remove all of my information from the database. Guess what I asked them to do?

Jonathon Hinson
Systems analyst,
Office of Information
Technology, state of Maine,
Augusta

Acknowledging Gore As Internet Visionary

IN COVERING "The Top 10 IT Developments of the Past 20 Years" on May 22, you state, "Fortunately, *Computerworld* never ran a story with the headline 'Al Gore Invents Internet.' "

Contrary to George Bush's Luddites, Gore never claimed he invented the Internet. In a March 9, 1999, interview with Wolf Blitzer during CNN's *Late Edition* show, Gore specifically said, "I took the initiative in creating the Internet." In 1976, Rep. Gore initiated legislation for construction of a "data highway." In 1986, Sen. Gore's Supercomputer Network Study Act called for mapping public information needs onto university and government networks, laying the foundation for the public Internet.

Gore's 1991 article for *Scientific American* described his vision for the Internet as a mass-media communication tool while Bill Gates was still touting CD-ROM. Gore's visionary efforts were key to creating the Internet.

Stop perpetuating myths created by the same people who claimed WMDs were in Iraq and start paying homage to a man of rare integrity who truly was instrumental in the creation of the Internet.

Bruce Stenman
Lightsmith Inc.,
Prunedale, Calif.

3,000 Issues or Bust

MY BET is that there *will* be a 3,000th print issue of *Computerworld* in 2026 ["Why There Won't Be a 3,000th Issue," *Computerworld.com*, May 22]. You underestimate the power of nostalgia.

Also, the death of the corporate programmer has been discussed for almost my entire 20-plus-year career. The languages keep changing, but the coding work still goes on. And there will always be technophobic people asking technologists to "make that thing do what I want it to do."

John E. Columbus
Owner,
Columbus Consulting Group,
New Hope, Minn.,
detanyek@hotmail.com

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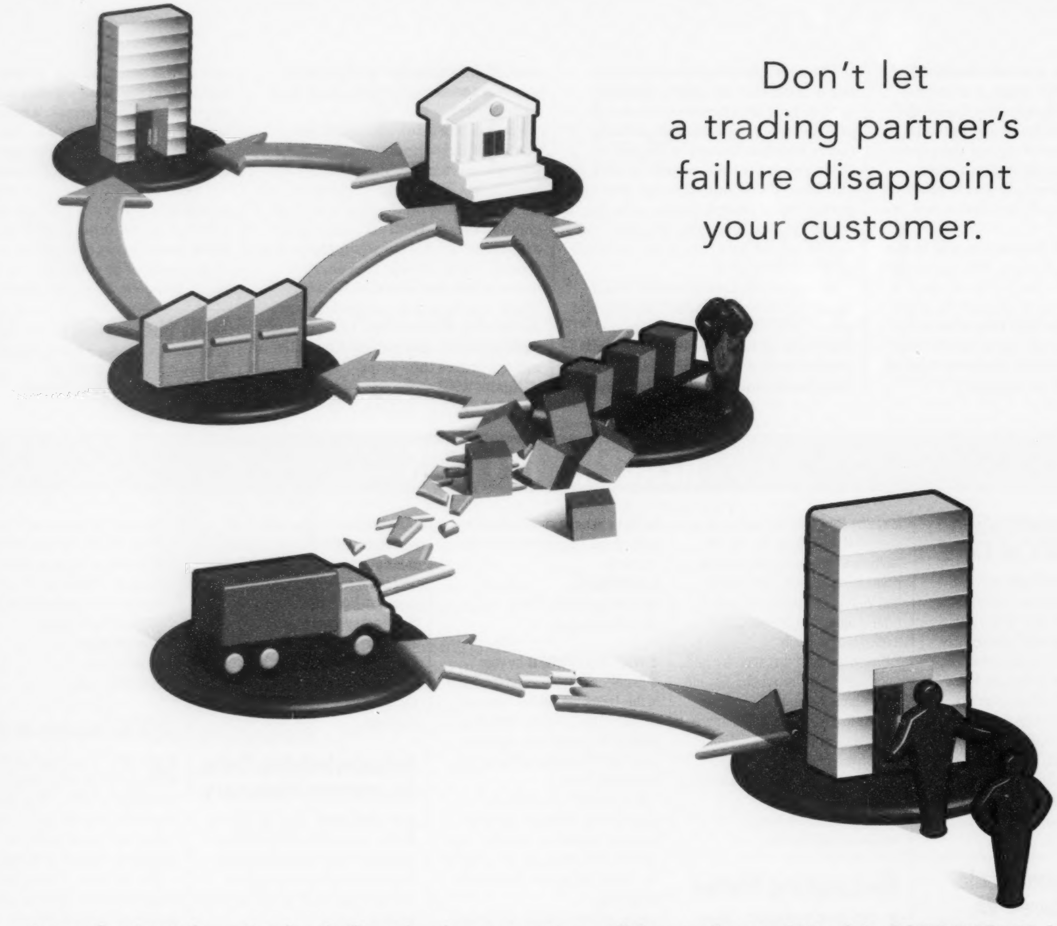

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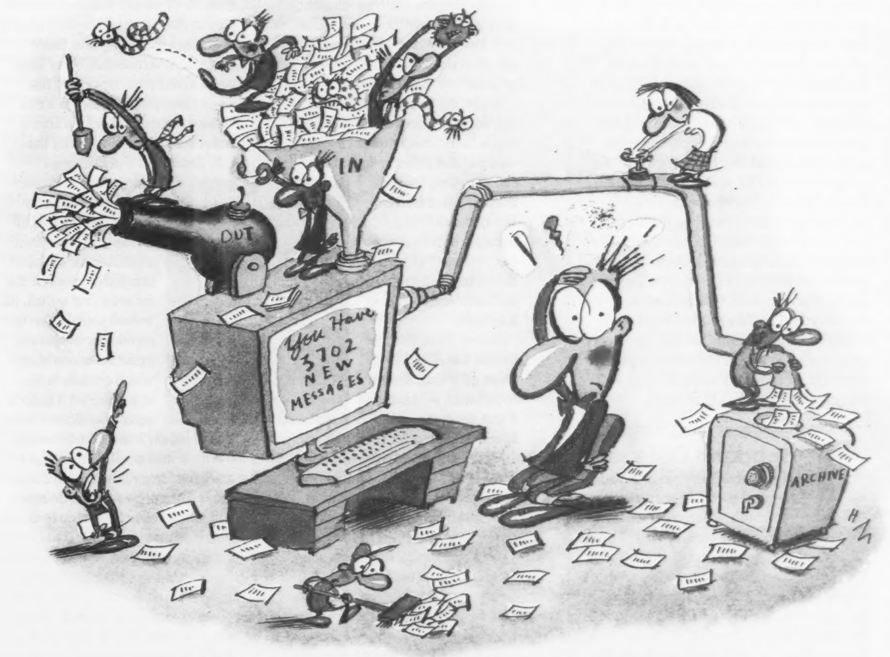
TECHNOLOGY

07.10.06

Hard Cores
Multiprocessor chips provide incredible gains in computing power. But for now, re-engineering software applications to run on them is a daunting task. **PAGE 28**

SECURITY MANAGER'S JOURNAL
Even a Manager's Technical Skills Need Sharpening
A training budget windfall for her team gives C.J. Kelly an idea: She could use some skills enhancement too. **PAGE 32**

FUTURE WATCH
It's All About the Image
Many people think of Xerox as the copier company, but CTO Sophie Vanderbroek says the Xerox Innovation Group is working at the intersection of information and documents. **PAGE 31**



HAL MAYFORTH

E-MAIL MANAGEMENT: Controlling Content Chaos

With more and more business taking place via e-mail, users need to manage content on three fronts.

By Sue Hildreth

AT CEDARS-Sinai Medical Center in Los Angeles, e-mail is an integral part of both hospital operations and patient care. The hospital relies on e-mail to transmit patient test results to doctors, coordinate the schedules of residents and staff, and send intensive-care unit alerts to the pagers of nurses and physicians. Physicians, residents and others use e-mail to collaborate.

"E-mail is a mission-critical application here," says Jim Brady, e-mail administrator at Cedars-Sinai.

While it's not news that e-mail has become a crucial part of business, what has changed is the sheer quantity of valuable business information that is being shared and stored exclusively as electronic mail.

"E-mail has taken over as the dominant way that employees and organizations exchange information. In the past, e-mail was how information about a meeting or the company picnic was distributed. But today, e-mail is the way all employees transact real business," says Randolph Kahn, founder of Kahn Consulting Inc. in Highland Park, Ill.

But mixed with all of that critical data are volumes of junk mail and worse: spam, viruses, personal notes and potentially offensive content. Along with cuts in productivity, there are the risks of corruption, deletion or theft of corporate e-mails containing valuable business data, as well as the accidental leakage of embarrassing or legally damaging content. E-mail can also put a company in jeopardy of lawsuits or fines for not complying with government and industry regulations.

According to IT managers and industry experts, there are three key technologies that few organizations can be without: antispam and antivirus defenses for screening incoming mail; outbound filtering and encryption to evaluate and protect outbound content; and archival software to ensure that e-mail containing intellectual property or addressing topics covered by government or industry regulations are retained in case of future need.

Resolving the Archiving Dilemma

FOR MANY ORGANIZATIONS, deciding what types of e-mail to save and for how long are the chief challenges in implementing archiving. Even laws that mandate e-mail retention are often not clear on what needs to be saved and what does not.

"Archiving has been very confusing, because there are different regulations from different bodies – federal and industry-specific," explains Sara Radicati, president and CEO of The Radicati Group. Because of that confusion, many IT departments have adopted an "archive everything" approach.

Cedars-Sinai Medical Center has opted to archive all e-mail and attachments, at least until it can decide on some specific policies for retention.

"We're still examining what we want to do," explains systems manager Jerry Hook. But rather than just moving mail onto DVDs, the hospital uses Symantec's Enterprise Vault, which users can search from their own mailboxes."

However, saving every e-mail ever sent by every employee carries its own risk.

"E-mail is better than voice mail in that people tend to read it a couple of times before hitting the Send button. But e-mails can be misconstrued," says Dave Johnson, director of infrastructure technologies at the financial services branch of global accounting firm Grant Thornton International. "Our legal department was concerned that saving everything could be a risk."

Since most of Grant Thornton's activities are not covered by the U.S. Securities and Exchange Commission's broker-dealer requirements for the retention of all e-mail and other communications, Johnson created a compromise for archiving e-mail. His "e-mail pooling" system enables employees to make decisions about which e-mails to save or delete, yet it guards against malicious deletion of legally important materials.

With e-mail pooling, messages are saved to a repository in Zantaz Inc.'s Enterprise Archive Solution. But employees can decide to delete unimportant messages from their inboxes. After 30 days, that message is also removed from the central repository. The 30-day grace period gives Johnson and his team time to stop the deletion. "E-mail pooling bridges the gap between archiving everything or nothing," he explains.

– SUE HILDRETH

> Archiving has been very confusing because there are different regulations from different bodies – federal and industry-specific.
>
> SARA RADICATI, CEO, THE RADICATI GROUP

1 Inbound Defenses

Organizations need inbound e-mail filtering software to catch spam, viruses and other junk mail before they clog or damage servers and desktops. Spam and virus protection usually starts at the network perimeter, either provided by an outsourced service provider or installed at the organization's Internet gateway. It's also a good idea to have antivirus software on e-mail servers and desktops, to guard against bugs on floppy disks, CDs and USB drives.

The 12,500 e-mail users at Cedars-Sinai are protected by IronPort Systems Inc.'s e-mail security appliance installed on the hospital's e-mail gateway. The IronPort device has its own virus and spam filters, as well as Sophos PLC's Anti-Virus and Symantec Corp.'s Brightmail AntiSpam software.

Because spammers have learned to evade traditional content-based spam filters, products like Brightmail combine multiple technologies, including heuristic analysis of the content, filters to detect URL masking, and reputation-based filtering of mail from suspect servers. IronPort also uses a reputation service to catch spam and viruses.

"If a piece of spam comes in from an IP address with a known bad reputation, it gives it a bad score," explains Brady.

In the past, Brady's team employed a spam filter that deleted mail tagged as spam. But staffers complained that legitimate e-mail was being lost. With the current approach, spam is quarantined on the appliance and users get a list of suspected spam e-mails that they can opt to save, delete or ignore.

To block viruses at the gateway, the hospital uses Sophos antivirus software on the IronPort appliances, as well as IronPort's SenderBase Network service. SenderBase collects data about Internet e-mail traffic in an effort to find new virus outbreaks. For added protection, Sybari Software Inc.'s Antigen product is deployed on the Exchange servers themselves. "It's another layer of protection in case something makes it through the gateway," Brady explains.

2 Monitoring Outbound Mail

Controlling e-mail that goes out of the hospital is also a concern at Cedars-Sinai, mainly because of regulatory requirements.

The Health Insurance Portability and Accountability Act (HIPAA) requires that patient data be kept secure and confidential, explains Brady, who is rolling out Zix Corp.'s Virtual Private Messenger. Zix VPM scans outgoing mail for patient-related keywords and encrypts them. The recipient gets an e-mail with a link to the encrypted message on the Zix server.

Filtering outbound e-mail prevents employees from exporting corporate intellectual property or content that may expose personal information about customers or patients, say experts. Harassing or inflammatory language is also a concern.

Nevertheless, actual adoption of outbound filtering has been sluggish. In a 2005 survey by The Radicati Group Inc., only 22% of corporate e-mail users said that their organizations filter outbound e-mail. Another 42% said their e-mail was not filtered, while 36% said they had no idea.

Because outbound filtering is similar to inbound filtering, many antispam vendors are getting into the act. "All the major [antispam vendors] are providing it," says Richi Jennings, an analyst at Ferris Research in San Francisco. "It's basically using the same kind of technology as with spam filtering."

Jerry Hook, a systems manager at University Health System Inc. in Knoxville, Tenn., uses CipherTrust Inc.'s IronMail to scan e-mail sent by the hospital's 4,200 employees. The antispam product's Compliance Profiling engine allows Hook to define outgoing content that's unacceptable or that requires encryption. The software can block or encrypt messages, depending on content and policy.

"Patient health information has to be encrypted before it's sent over the Internet, according to HIPAA," says Hook. "We have a dictionary specific to HIPAA that CipherTrust uses to scan Internet mail."

Encryption has also been slow to take hold. A report from IDC in Framingham, Mass., reveals that companies have not made much use of it, even though many e-mail products include encryption capabilities. But the increase in privacy regulations is fueling interest in encryption technologies.

Of course, IT managers can't block or encrypt messages that don't go through the corporate e-mail system. To prevent employees from sending e-mail out via their personal accounts, drug research firm Kalypsys Inc. in San Diego blocks certain e-mail protocols and Web sites, including Internet Message Access Protocol, Post Office Protocol, Hotmail and Yahoo Mail.

Kalypsys uses Websense Inc.'s Enterprise URL and protocol-blocking software, as well as individual port blocking. The main reason for preventing the use of personal e-mail, says John Graf, associate director of IT at Kalypsys, is to protect the company's intellectual property.

"Our hope is that if any intellectual property is taken and sent, we'll at least have a record of that," explains Graf. "If we ever defend a patent, we can trace how it got out of the company."

3 Archiving Critical Content

The days when the IT department could merely purge the e-mail server of all messages over 60 days old, without regard to their value, are long gone. Retention of records, including electronic ones, is a legal requirement for business and government alike.

According to a 2005 study by Enterprise Strategy Group Inc., e-mail has become the most frequently requested type of business record by courts and regulators. The report, "Digital Archiving End-User Survey & Market Forecast 2006-2010," found that 77% of organizations involved in an electronic data discovery request have been asked to produce e-mail messages as part of a legal or regulatory proceeding.

Kalypsys archives all inbound and outbound messages in Quest Software Inc.'s Archive Manager. Graf says archiving is valuable not only in order to defend a patent, but also to stay in compliance with FDA rules, the Sarbanes-Oxley Act and other regulations that require the retention of e-mail.

Companies often have irreplaceable business documents — contracts, partnership negotiations, possible new product strategies — stored as e-mail. If those messages and attachments are not archived in a centrally managed location, the odds are high that they'll be deleted or simply lost in the local storage of hundreds of company desktops.

"IT departments that blow away the contents of the e-mail systems create liability and risk and prevent the company from actually running its business," says Kahn, adding that he has seen a surge in companies implementing e-mail retention policies and systems over the past two years. Even routine e-mail messages can become quite valuable as a repository of the company's working knowledge base.

At Kalypsys, the archive is also used as a knowledge management tool.

"Although we purchased the product originally to meet compliance issues, we have found that it does enable some rather imaginative knowledge management," says Graf. For instance, Archive Manager allows the creation of virtual mailboxes that can then be accessed by a group of authorized employees.

"So our IT department shares access to virtual mailboxes created for all our major vendors. This allows anyone in IT to access all the orders placed by any member of IT with that specific vendor," according to Graf, who adds that e-mails with customer contact information and correspondence are archived so that such information isn't lost if an employee leaves Kalypsys.

"This is particularly helpful," says Graf, "in areas such as business development, where contact information and dialogues are maintained even if someone leaves the company." ◗

Hildreth is a freelance writer in Waltham, Mass. You can reach her at Sue.Hildreth@comcast.net.

E-mail **Alternatives**

NOT EVERY ACTIVITY needs to be conducted via e-mail. E-mail administrators routinely gripe about employees who ship huge attachments back and forth via e-mail and then save them on the e-mail server instead of offloading them to personal files. Here are three complementary technologies that may be better suited for your employees' communication needs:

FTP. The good old File Transfer Protocol still works like a charm for sharing large files without replicating them across the network. And there are lots of FTP clients out there, so users can choose whichever is easiest for them.

Team work spaces. These are software products that provide collaborative workspaces equipped with discussion forums, file sharing, version control and instant messaging. The idea is to provide project teams with a virtual workroom that is more efficient and flexible than collaborating via e-mail alone.

Wikis. For company-side discussions or postings, wikis are a lightweight method for getting the information out. Wikis are editable HTML pages that allow authorized users to post content and collaborate. Wikis offer a better alternative to sending a long e-mail with cc's to half the company (except, inevitably, one key employee).

– SUE HILDRETH

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RICHARD BORGE

Hard Cores

Re-engineering programs to work on multicore chips is already difficult but will get even harder as the number of processors continues to multiply.

BY GARY ANTHES

PUTTING TWO or more processor cores on a single silicon chip has been one of the most important milestones in computing in recent years. It allows users to continue to reap the benefits of Moore's Law while sidestepping the extreme difficulty of manufacturing, powering and cooling single microprocessors beyond 4 GHz. Chip multiprocessors (CMP) also offer the opportunity to significantly boost the performance of applications that are able to share them.

But the benefits of parallel processing don't come easily. Programmers have to behave differently, as do compilers, languages and operating systems. If application software is to reap the benefits of CMPs, new skills, techniques and tools for designing, coding and debugging will be needed. Fortunately, both hardware and software vendors are developing tools and methods to make the job easier.

"Multicore chips are going to be a challenge for software developers and compiler writers," says Ken Kennedy, a computer science professor at Rice University in Houston who specializes in software for parallel processing. "If you look at chip makers' road maps, they are doubling cores every couple of years, sort of on a Moore's Law basis, and I'm worried we are not going to be able to keep up."

Desktop applications that traditionally have been written for one processor will increasingly be written to exploit the concurrency available in CMPs. Meanwhile, server applications that have for years been able to use multiple processors will be able to distribute their workloads more flexibly and efficiently. Virtualization, another important trend in computing today, will be made easier by CMPs as well.

Keeping up with CMPs is the focus of intense activity at a number of companies, including Microsoft Corp. Researchers there who are developing CMP tools are focusing on two broad areas: how to find errors in code written for multiple processors, and how to make it easier to write reliable software in the first place.

"A lot of the techniques we have used with sequential code don't work as well, or at all, with parallel programs," says Jim Larus, manager of programming languages and tools at Microsoft Research. "In testing, you typically run your program with a lot of data, but with parallel programs, you could run your program 1,000 times with the same data and get the right answer, but on the 1,001st time, an error manifests itself."

This ugly trait results from "race" conditions in parallel code, in which one process is expected to finish in time to supply a result to another process — and usually does. But because of some anomaly such as an operating system interrupt, occasionally it does not. Such bugs can be extremely hard to find because they are not readily reproducible.

The tools Larus' group is developing allow more controlled testing so a programmer can, for example, vary the timing of two threads to check for race errors. The tools will eventually be offered commercially as part of Visual Studio, Larus says, "but we have a long way to go."

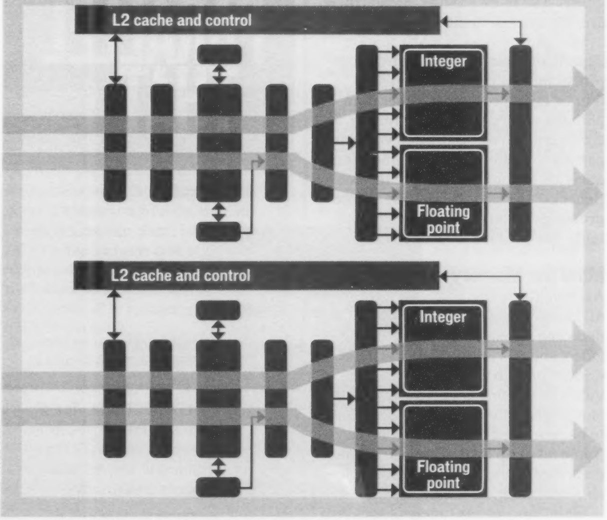
Microsoft Research is also trying the KISS — or "keep it strictly sequential" — model. KISS transforms a concurrent program into a sequential one that simulates the execution of the concurrent program. The sequential program can then be analyzed and partially debugged by a conventional tool that only needs to understand the semantics of sequential execution.

Microsoft and others are also working on a new programming model called software transactional memory, or STM. It's a way to correctly synchronize memory operations without locking — the traditional way to avoid timing errors — so that problems such as deadlocking are avoided. STM treats a memory access as part of a transaction, and if a timing conflict occurs with some other operation, the transaction is simply rolled back and tried again later, similar to the way today's database systems work.

"The idea is that the programmer, instead of specifying at a very low level how to do this synchronization, basically says, 'All the code between this point in the program and this other point, I want to behave as if it were the only thing accessing data at this time. System, go make that happen,' " says Larus.

THE MANY FACETS OF MULTIPROCESSING

Intel's Pentium Processor Extreme Edition uses two processor cores, each with its own on-chip cache and each running at the same speed. Using Intel's Hyper-Threading Technology, each core functions as two logical processors, enabling four-thread functionality, in this example balanced between integer and floating-point arithmetic. The processor can run multiple applications simultaneously with background tasks such as real-time security and system maintenance. The chip also can use Intel's Virtualization Technology to run multiple operating systems and/or applications in independent partitions.



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STM — "a really hot research topic these days" — may someday be implemented in a combination of hardware and software, says Larus. In the meantime, programmers will have to use fine-grained locking — in which individual rows or elements of a table are locked, rather than the whole table — to ensure correct synchronization in parallel programs. The more parallel threads there are, the more difficult that becomes.

Microsoft products won't require significant changes to scale from two processors (or processor cores) to four or eight processors, other than perhaps some performance tuning, according to Larus. "But when you start getting to bigger-scale machines, the question becomes, What are the bottlenecks?" he says. "If you have more processors, you have to have increasingly fine-grained locking."

Mind the Memory

Aachen, Germany-based MainConcept AG develops software for encoding and decoding signals such as high-definition video, and it is an accomplished practitioner of such fine-grained locking. Video processing is a computational challenge; high-definition movies have to be processed in real time, and each frame takes up 1MB of memory, with each slice of the frame requiring extensive mathematical manipulation.

MainConcept has tuned its software to run on systems with dual-core chips, with the cores working on frame slices in parallel. The company has seen performance improve by a factor of 1.8, says MainConcept CEO Markus Mönig. He says performance has improved by another factor of 1.8 through the use of two dual-core processors. Such near-linear speedups are very close to ideal, with any gain over 1.5 considered good.

The software uses and searches "huge areas of memory," Mönig says. If the software is carefully constructed, it can use on-chip cache memory for much of its work, speeding processing. MainConcept uses performance-tuning tools from Intel Corp. to tune the software to the hardware architecture. Intel's VTune Performance Analyzer helps optimize the code, and its Thread Profiler and Thread Checker help balance the work of multiple threads and identify bottlenecks in multithreaded codes.

But Mönig worries that he won't be able to boost performance linearly as the number of processor cores increases. "We don't expect this for eight-core, 16-core and beyond," he says. "The faster and the more cores there are, the more the memory access is the bottleneck."

MULTI-THIS, PARALLEL THAT

MULTITASKING: Gives the user the impression of concurrency. A sequence of code is suspended briefly while some other code runs on the same processor. In multithreading, one thread pauses while another runs on the same processor.

HYPERTHREADING: An Intel term: multiple threads run simultaneously on one processor.

CHIP MULTIPROCESSOR: Two or more processing units on one chip running separate applications or a single parallel application. They may have their own cache or share cache.

INSTRUCTION PIPELINING: The processor begins work on the next instruction before the previous one is complete. Speed is increased by storing the next instruction in cache.

SUPERSCALAR PROCESSING: The ability to execute two instructions per clock cycle.

BRANCH PREDICTION, OUT-OF-ORDER EXECUTION AND SPECULATIVE EXECUTION: Various techniques to allow simultaneous execution of parts of a program that may not be strictly parallel. Instructions are executed conditionally and sometimes have to be reversed.

VECTOR PROCESSING: Scientific or engineering calculations in which an entire string (vector) of numbers is processed with one operation.

Code writers trying to exploit multiple processors or processor cores face three challenges, says James Reinders, director of business development for Intel's software development products. The first is scalability — how to keep each additional processor busy. A threefold performance boost on a four-processor system is "darn good," he says; anything more is "exceptional."

The second challenge is "correctness" — how to avoid race conditions, deadlocks and other bugs characteristic of multiprocessor applications. Intel's Thread Checker can find threads that share memory but do not synchronize, which, he says, "almost always [indicates] a bug."

The third challenge is "ease of programming," Reinders says, modern compilers can help by finding and exploiting opportunities for parallel processing in source code. The programmer can help the compiler by including "a few little hints" in the code, he says.

These "hints" are available in a new standard called OpenMP, specifications for compiler directives, library routines and environment variables that can be used to specify parallelism in Fortran, C and C++ programs. "The alternative to using these extensions is to do threading by hand, and that takes some clarity of thought," Reinders says. "So OpenMP can be tremendously helpful."

Kennedy agrees. "My philosophy is the programmer should write the program in the style that's most natural, and the compiler should recognize the properties of the chip that have to be exploited to get reasonable performance," he says.

Tom Halfhill, an analyst for In-Stat's "Microprocessor Report" in San Jose, says some software developers are "tearing their hair out" over the new CMP systems. "Rewriting the software for multithreading is a lot of work, and it introduces new bugs, new complexities, and the software gets bigger, so there is some resistance to it." He says Fortran and C++ don't contain parallel constructs natively, whereas Java does, so the move to CMP may boost Java's fortunes.

But the CMP train has left the station, whether software developers like it or not. Intel says 85% of its server processors and 70% of its PC processors will be dual-core by year's end. Halfhill predicts that in five years, microprocessor chips in servers will have eight to 16 cores, and desktop machines will have half that number. And, he says, each core will be able to process at least four software threads simultaneously, a technique Intel calls hyperthreading (see diagram, page 29).

The angst today over optimizing software for CMPs is a little like that of 20 years ago when developers obsessed about the amount of memory and disk space available, says Halfhill. Now both resources are so cheap and plentiful that most applications just assume that they will get whatever they need.

"In five to 10 years, we'll get to the same place with processor cores," Halfhill predicts. "There will be so many that the operating system will just dedicate how many cores the application needs, and you won't worry if some cores are being wasted."

Up Next

Intel's Reinders says CMPs will give a boost to hardware virtualization — by which a computer is made to run multiple operating systems — with CMPs allowing for a more fine-grained partitioning of a machine. It is possible to carefully control and allocate processing resources by specifying, for example, that a certain application may use two cores and no more, while some higher-priority application gets four cores. "If you map virtualization onto individual cores, you can get more predictable response," he says.

CMPs offer performance advantages over systems with multiple, separate processors, because interprocessor and processor-memory communication is much faster when it's on a chip. Rice University's Kennedy predicts that will lead to hybrid systems consisting of clusters of computers running multicore processors. "Then you have two kinds of parallelism: cross-chip parallelism, perhaps with message passing and a shared memory, and on-chip parallelism," he says. Then, functions that require very high interprocessor bandwidth can be put on a CMP, and those that don't can be distributed across the cluster. Various types of transaction processing and database systems could make good use of such an architecture, Kennedy says.

While everyone agrees that more processors, more cores and more power can generally be put to good use in big enterprisewide systems, the future of CMPs on desktops and laptops — where even single-core processors are idle much of the time — is not quite so clear. Multithreaded game software can put the parallelism to good use, and so perhaps can a few specialized applications, such as speech recognition.

Single-processor-core PCs today can take advantage of multitasking, in which one thread, for example, deals with display while another does a long-running computation and another goes out to a server. But what to do with eight processor cores all running at 3.6 GHz?

Microsoft's Larus says he knows people are probably having trouble imagining how a single user might take advantage of that kind of system. "To be honest, so are we," he says. "This is a subject of very active discussion here." ▸

XEROX CORP

Xerox Innovation Group's Sophie Vandebroek encourages her team to "dream with customers."

IT'S ALL ABOUT THE Image

You might think of Xerox as the copier company, but its Xerox Innovation Group is working at the intersection of information and documents. By Gary Anthes

FUTURE WATCH

XEROX CORP. acknowledges that it has a bit of an image problem. "Many people still mostly associate us with the original Xerox product, the copier," says the $16 billion company's new chief technology officer, Sophie Vandebroek.

But Vandebroek and the 600 scientists, engineers and software developers she leads in the Xerox Innovation Group (XIG) are working hard to change that perception. The company is in the digital- and paper-document management business now, and it's earning two patents a day on technologies — from microprocessors to color sensors and steganography — that often originate within XIG.

The company's annual report refers to "the True Colors of Xerox," meaning corporate values such as customer service, technological innovation and social responsibility. But the phrase has literal meaning as well. Here are a few of the research projects going on in the Color Studio at XIG's Webster, N.Y., campus.

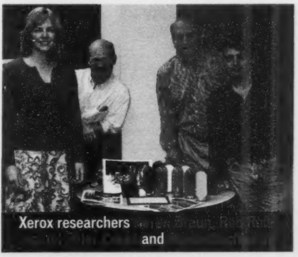
- The human eye can distinguish 1 million colors, but printers have a color "gamut" of just half that number. XIG has developed a process called spatial gamut mapping that fills in the missing colors with colors that the eye and brain will interpret as more detailed and realistic than would be the case if the most accurate colors were chosen based on a spectrometer. "Sometimes perception trumps accuracy as a goal," says color researcher Karen Braun.

- In commercial printing, consistency counts. The first brochure should look just like the last one. So Xerox has figured out a way to equip printers with color sensors that watch pages as they fly by at 2 feet per second and tweak colors as the print job proceeds. The sensors and controllers can detect and correct color deviations far faster and more accurately than a human operator working with manual controls, says researcher L.K. Meshta.

- A number of projects deal with security — such as how to prevent counterfeiting. One, called GlossMarks, can print an image that appears to have a second image embedded in it — a little like a hologram — in one pass. The second image can't be copied. And an image containing CorrelationMarks looks normal but reveals a secret message when overlaid with a special grid.

GlossMarks and CorrelationMarks address a tough problem: how to secure a document for "a run length of one," says Reiner Eschbach, a lab manager at Xerox.

Conventional techniques such as holograms can give pretty good security at a reasonable price for thousands of credit cards containing the same hologram. But putting a unique hologram on a single card, while technically feasible, isn't economically viable. Eschbach's team dreams up low-cost methods that require no special paper, materials or machine modifications yet can uniquely identify and protect a single document.



GARY ANTHES

Xerox researchers [illegible] Braun, [illegible] and [illegible]

Tonier Toner

The toner used in most copiers and laser printers today dates to 1938, when the particles in powder made from grinding up the lycopodium plant were found to have a good shape and size for printing. Now Xerox has found a way to create toner particles by growing them from nano-size particles to highly optimized sizes and shapes. The new toner is cheaper to produce and use and is more reliable. The particles are so fine and frictionless that a bottle of toner sloshes like a liquid.

But that's not the end of toner research. Vandebroek encourages her scientists and engineers to "dream with customers." One unfulfilled dream, she says, is to be able to print with white ink. "We have cyan, magenta, black and yellow, but you can't make white from that," she says. "We can create it. The question is, How do you bring it to market?"

In any case, Vandebroek says, customers have bigger pain points. Businesses print 4.5 trillion pages of paper annually and spend 10% to 15% of their revenue on document-intensive activities — two to three times more than they spend on research and development. "And half the time, when I'm looking for a certain document, I might not find the latest version, or I might not find what I'm looking for at all," she says. "I have way too much paper lying around everywhere, and I can't organize it."

Solving those problems means redefining the document and rethinking how people work, Vandebroek says.

Xerox spends $1.7 billion a year on research, development and engineering, including the R&D done at Fuji Xerox Co. The company's five research centers – three in the U.S., one in Canada and one in France – include the legendary Palo Alto Research Center, now a Xerox subsidiary that also does contract research for other companies. All of the centers do near-term, product-oriented research, as well as longer-term, "blue-sky" work,

For example, a Xerox prototype called Document Categorizer automatically indexes, categorizes and routes electronic documents. Using linguistic analysis and machine-learning algorithms, it applies probabilistic models derived from a collection of already categorized documents to assign new ones to categories — such as marketing or technical support — as they come in. Xerox is using the technology to analyze and route customer calls and correspondence, and a European customer hopes to use it to eliminate much of the labor in its mailroom.

But real-time color sensors and a quest for white ink are only what's glimpsed in a narrow look at XIG. At a higher level, it's all about the synthesis of images and information, says Sid Dalal, vice president. He says an era of ubiquitous imaging is dovetailing with an era of ubiquitous computing.

Dalal offers as an example a technique that Xerox developed by which an image that starts out in color can be converted to an encoded black-and-white image for faxing and then printed by the recipient in color. More broadly, "there can be metadata and a model from which you can create images," he says. "The image may not even be there, but the metadata will allow creation of a new image from an old image, and it's transferable to any computing device and network.

"We are really bringing the world of information and documents together." ▸

Even a Manager's Tech Skills Need Sharpening

A training budget windfall for her team gives our manager an idea: She could use some skills enhancement too. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

ONE OF the things IT managers face is losing touch with the technical aspects of the projects they manage. That's OK if you've got plenty of talented people working for you. But when you have a small staff and lose a key person, you have to be able to step in and do the work yourself.

Personally, I have always tried to stay as hands-on as possible without losing my vision of the overall strategy. Technical people often get hung up on the details and forget to step back to see the big picture. A good manager keeps the vision in mind and guides the team in the direction of what's good for the business, which does not always jibe with what the technical team thinks is important to focus on.

In my realm, this plays out with me reining in the most severe security impulses of the professionals who work for me while ensuring that security is tight. They want the network locked down as much as possible, as they should. I do too, but I have to keep in mind our users and the efficient functioning of the state agency we work for.

For example, I don't want users to be forced to choose a very strong password that has to be changed every 30 days. The security professional in me knows that every increment of protection helps, but the manager in me knows that users resist strictures that constrain efficient work habits. If you institute practices that users will ignore or circumvent — by posting their strong passwords on their monitors, for instance — you've done nothing to increase your security profile.

But how does a manager stay hands-on when skills are constantly being ratcheted up?

We had a windfall in training dollars this year. A lot of training money had gone unused; it was as if Christmas had fallen at the end of the fiscal year instead of the end of the calendar year.

I set to work right away assessing the skills of the team and the areas where we needed to get stronger. Then it dawned on me: I could use some additional training myself.

Managers don't usually go off to get more technical training. But my team is small and often needs me to pitch in, so why not? I'm not looking for additional credentials. I already have an advanced degree and four certifications (which mean nothing in some circles and a great deal in others, but that's another story). I'm looking to enhance my skills so I will better understand what my employees are doing and how I can help them. What I need is an in-depth understanding of networking technologies as they relate to security. The thought that I could send my entire team off to enhance their skills and still have money to make myself more effective in my job got me kind of excited.

> What I need is an in-depth understanding of networking technologies as they relate to security.

First, I turned my attention to what my team needed. Our environment runs primarily on Microsoft and Cisco products, and training in those two areas would be the focus. I went to the team members and asked them to decide what they needed and pick training courses. Their choices were amazingly in sync with what I thought they required. Hooray for communication! I made just a couple of adjustments that everyone immediately agreed to.

Back to School

Then it was my turn. What were my knowledge gaps? For me, my No. 1 training priority was clear. I had always wanted to achieve the CCIE (Cisco Certified Internetwork Expert). Many years ago, I purchased the entire study series, including the hands-on lab guide. From time to time, I pick up those books and read a few chapters. I also use them as reference materials when network problems come up.

I've probably learned a lot just by having those books close at hand. But I haven't made any real progress toward the CCIE. I'll have to start at the beginning by achieving the CCNA (Cisco Certified Network Associate) and build upon that. But I want to get through that quickly so I can move on to the good stuff.

My plan is to take an e-learning course for the CCNA. I'll kick my way through that in a month or two, take the exam and check that off my list. (If only I could do the Base10 to Base2 to Hex conversions in my head!) Then on to the advanced training. I want to understand the functioning and applicability of every security feature of every Cisco device imaginable, from switches and routers to firewalls and virtual private networks to intrusion-detection and -prevention systems.

So my goal this year, after I get the CCNA out of the way, is to achieve the next level of training up from that, the CCSP (Cisco Certified Security Professional). I can take a class at the end of this year. It will require me to be gone from the office for two straight weeks while I endure 12-hour days cramming this stuff into my brain. But I will be on the road at last to that top-level certification.

I've said it before: I'm lucky to have a good boss. When I told him what I wanted to do, he understood where I was coming from and approved all my training. Like me, he understands how important it is to keep up with the technology in a real and practical way. He's a closet coder himself, often developing programs we need over the weekends.

My Cisco training is going to cost about $10,000. That's a lot of money to spend on technical training for a manager. But if I had to hire someone with these skills, it would cost us well over six figures a year. State agencies usually can't afford to hire talent at Silicon Valley wages, even though state and federal governments are required to secure their networks at a high degree of sophistication. Well, we can pay the piper now or later. We'll do it now. ▸

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Report Cites Threat Of Cyberterrorism

In a report titled "Essential Steps to Strengthen America's Cyber Terrorism Preparedness," the Business Roundtable says that the U.S. "is not sufficiently prepared for a major attack . . . that would lead to disruption of large parts of the Internet." The report identifies three "cyber gaps": the lack of "tripwires" to indicate that an attack is under way, a failure to clearly identify who is responsible for restoring the infrastructure and a lack of resources for doing the same. The report's several recommendations are divided between the government and the private sector.

Contractor Faces Sabotage Charge

Richard F. Sylvestre has been charged with gaining unauthorized access to a government national defense computer and allegedly putting malicious software on computers at the U.S. Navy's European Planning and Operations Command Center in Naples, Italy. Sylvestre owns Ares Systems International Corp., which has done contract work for the Navy. He was allegedly angry that his bid for another project was not accepted. The infection could have brought down the network, which is used to track submarine and ship locations.

BPO Employee Arrested in India

Police in Bangalore, India, have reportedly arrested an employee of an HSBC Bank PLC data processing center. Nadeem Kashmiri allegedly supplied others with information that allowed them to steal $426,000 from the accounts of HSBC customers.

The Paradox:
Multiple layers of security make life harder for threats.
Multiple layers of security make life harder for you.

The Answer: Proven security.

- Anti-Spam & Anti-Spyware
- Network Access Control
- Intrusion Prevention
- Desktop Firewall
- E-Mail Security
- Anti-Virus

Security threats are mounting in number—and they're evolving in complexity. Your security must evolve as well. This used to mean managing multiple products without integration, which created operational challenges, risk, and increasing costs. Not any more. With McAfee Total Protection for Enterprise, you'll have comprehensive, integrated protection. You'll control everything—from anti-virus to network access control to anti-spyware—all from a single management console. McAfee Total Protection solutions are engineered to provide maximum manageability and deliver total endpoint security without compromise. McAfee, the dedicated security company that blocked or contained 100% of the top attacks in 2005, delivers proven results backed by more than 15 years of experience. Secure your business advantage. Learn more at www.mcafee.com/total

Proven Security

Top list of attacks as reported by Wildlist.org and McAfee AVERT Labs. McAfee and/or additional marks herein are registered trademarks or trademarks of McAfee, Inc. and/or its affiliates in the U.S. and/or other countries. McAfee Red in connection with security is distinctive of McAfee brand products. All other registered and unregistered trademarks herein are the sole property of their respective owners. © 2006 McAfee, Inc. All rights reserved.

BRIEFS

Adobe Plans Release Of License Manager

■ Adobe Systems Inc. announced that it plans to ship Adobe License Manager, a system that's intended to help existing customers track and monitor their Adobe software licenses more easily. The system, which is based on Macrovision Corp.'s FlexNet Manager and runs behind a customer's firewall, is designed to help Adobe customers determine whether they are in compliance with the terms of their licensing agreements, according to the San Jose-based software provider. Adobe License Manager will be available free of charge to Adobe customers and will ship by year's end.

Disuk Announces Encryption Appliance

■ Disuk Ltd. in Silverstone, England, has announced a new addition to its line of Paranoia2 data encryption appliances. Designed to sit between archive servers and UDO (Ultra Density Optical) media libraries from optical storage manufacturer Plasmon PLC, the new appliance encrypts data during the transfer process without slowing overall write speed, according to the company. The appliance will be available in the third quarter. Pricing, with Plasmon UDO support, ranges from $11,500 to $14,500.

DataDirect Updates XQuery Engine

■ DataDirect Technologies Inc., an operating company of Progress Software Corp., released Version 2.0 of DataDirect XQuery, its embeddable, database-independent component for processing and aggregating XML, relational and data formats such as electronic data interchange and CSV. Bedford, Mass.-based DataDirect said Version 2.0 speeds up queries in any environment and supports older data formats. Version 2.0 also adds support for Oracle 10gR2, Sybase 15 and Microsoft SQL Server 2005. XQuery licenses start at $495.

CURT A. MONASH

Companies Need a Strategy To Manage Words

FOR THOUSANDS OF YEARS, the primary way humans record and exchange information has remained the same: We've used language. Pictures and numbers are important too, but the history of humankind is literally written in words.

Businesses and other enterprises are no exception to this rule. Customer communication is done through words. Internal communication is done through words. Information is gathered largely through words. Meetings, phone calls, e-mail, instant messaging, reading on the Web — taken together, those play a much larger role in most knowledge workers' lives than numbers, graphics or routine transactions.

CURT A. MONASH is a consultant in Acton, Mass. You can reach him at **curtmonash@monash.com.**

So do enterprises have comprehensive strategies for managing all these words? No way. You can hardly be in business these days unless you have sophisticated ways to manage, understand, analyze, exploit and add to structured data. But technology and business strategies for dealing with textual data are vastly more primitive. And the situation is worse yet for voice information (which is basically like text, except that it's dirty and highly uncompressed).

To be sure, there have been some beginnings. Search, text indexing and/or what generally passes for knowledge management have become must-haves at many companies, as has content management. Storage strategies are increasingly taking account of the nonupdatable nature of most documents. Text mining is a small but fast-growing market with a number of hot subsectors.

Indeed, in a few cases, corporate ontologies are being built. (Procter & Gamble even has one computational linguist among its 120,000-plus employees and may hire a second next year.) Yet vastly more work is needed, and the time has come for a comprehensive road map toward acquiring a management strategy for linguistic content.

But before drawing such a map, we should get a clearer view of our destination. What should a business hope to accomplish through the electronic management of text? A good core list might be as follows:

Search and document-finding. For many people, text management begins and ends with search. But even if you believe that, there are many kinds of search, each with its own difficulties. You want to present information to customers, partners and employees. Some of it you really want to press on them for marketing purposes, whether or not it's exactly what they most want to see. In other cases, you want to help somebody find a needle in a haystack — without being sure that the needle even exists in the first place. Document formats range from Web pages to e-mail to Office output and keep going from there; modern enterprise search tools typically recognize well over 100 file types.

To slice it another way, search is needed in almost every department and function: sales, Web marketing, engineering, recruiting and employee-facing human resources, to name just a few. But the requirements and challenges of each of those applications can be so different as to require a whole different set of technologies and business processes to make them work.

Object-finding. Documents aren't the only targets for search engines. Pictures, video, audio, structured records — all can be found through text search. Text search for structured records is particularly important. It's central to online catalog sales, and it's also crucial to a number of compliance initiatives that are hastening the adoption of text technology.

Knowledge (re)discovery. Search technology and its use may be primitive, but most enterprises are at least making efforts in those areas. Knowledge extraction and text mining are equally important, however, and many companies haven't even begun to consider them. Much like search, text mining can be applied to almost any area of a business — customer communication, marketing analysis, engineering, HR and plenty more. And the same goes for more targeted, less statistical forms of information extraction as well.

Regulatory compliance. One group of text applications deserves particular attention: those that can help you obey the law. Regulatory mandates for text commonly come in two kinds. One is simply document collection and retention, to be done as completely, securely, cost-effectively and searchably as possible. The other is risk monitoring. Whether they're checking for internal fraud (for the Sarbanes-Oxley Act), automotive malfunctions (the TREAD Act) or drug side effects, companies increasingly have the legal duty to act upon signs of trouble, no matter what form those signs first appear in. And without text analytics, even recognizing those signs in the first place is an expensive manual process.

I'm running out of space here, so I'll leave the actual technical road map for the next column. But as a sneak preview, you can find a lot of the pieces at *www.texttechnologies.com*, along with other discussion of text analytics issues. ▸

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MANAGEMENT

When HQ Is Over There
It takes a combination of close attention, social savvy and intuition for the CIOs of U.S. subsidiaries to strike up successful relationships with bosses and other executives located half a world away. **PAGE 38**

Steering the Steering Committee
Guiding the activities of your IT steering committee and getting the most out of its efforts can be tricky. Life Time Fitness CIO Brent Zempel and three other IT executives explain how they do it. **PAGE 39**

OPINION
Stifling IT Innovation
It's easy to demand innovation from IT, says Bart Perkins, but when it comes to delivering, IT often finds that the deck is stacked against it. **PAGE 41**

Harder Hires; Tougher Turnover

IT leaders are working harder to find and keep top talent.

BY MARY K. PRATT

VITAL SIGNS

WHEN BILL CORLEY sought to hire an entry-level help desk worker four years ago, he received 500 responses from highly qualified candidates within two days of posting an ad on Monster.com.

When he posted the same job a few months ago, he had only 40 responses after a week.

"People who were unemployed four years ago are now either reabsorbed or are in different fields," says Corley, CIO at engineering firm SEA Consultants Inc. in Cambridge, Mass.

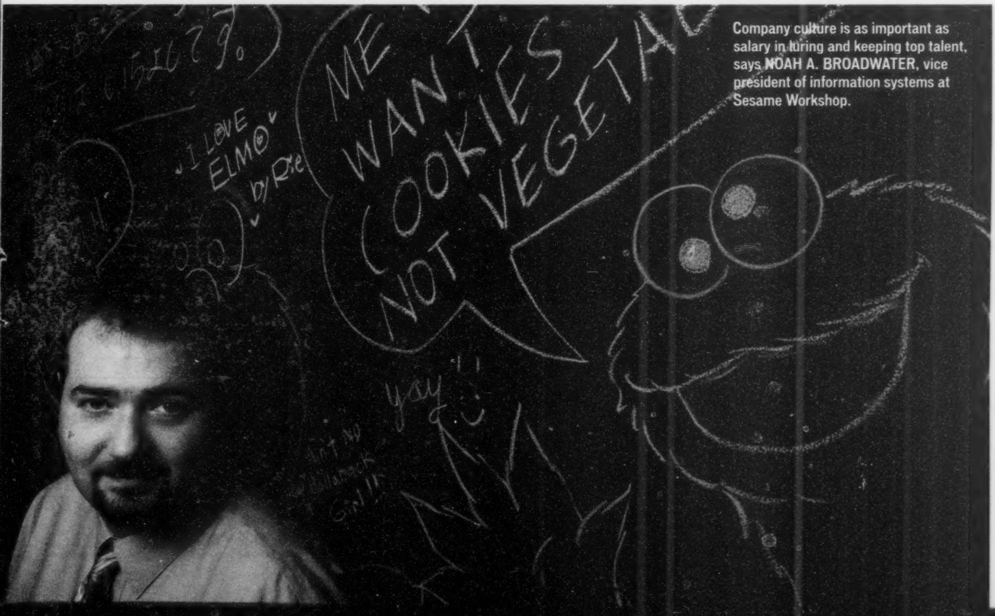
He's not the only one who has felt the pinch of a tightening labor market.

Noah A. Broadwater, vice president of information systems at nonprofit Sesame Workshop in New York, says he recently lost a few of his workers to higher-paying jobs at for-profit companies.

And Clint Wood, an application systems manager for the Southwest Florida Water Management District, has lost a half-dozen staffers from his 27-member group in the past year. He says it takes longer to find qualified applicants; he had to repost one .Net developer position a few times before getting any desirable candidates.

In *Computerworld*'s first quarterly online Vital Signs poll of 300 IT leaders, many respondents reported that it's tougher to bring in the right IT talent today than it was just a year ago. Moreover, some said they're seeing a bigger turnover in existing staffs this year, too. As a result, they're adjusting their employment strategies, reconsidering hiring criteria and compensation packages, and contemplating the use of more outsourced talent.

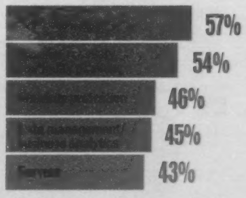
PETER MURPHY


ME WANT COOKIES NOT VEGETA
I LOVE ELMO by Rie
yay!!

Company culture is as important as salary in luring and keeping top talent, says NOAH A. BROADWATER, vice president of information systems at Sesame Workshop.

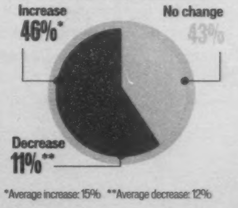
Taking the Pulse of IT

What are the most critical technologies to your company today?*



*Top five responses; multiple responses allowed.

What changes do you expect in your IT spending in the next 12 months?



*Average increase: 15% **Average decrease: 12%

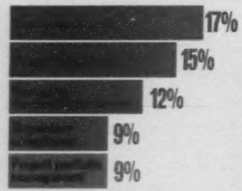
Base: 300 IT professionals

Computerworld Vital Signs online survey, May 2006

MANAGEMENT

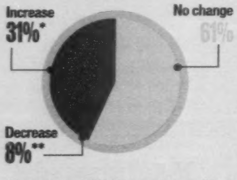
Taking the Pulse of IT

What will be your biggest management challenge in the next three months?*



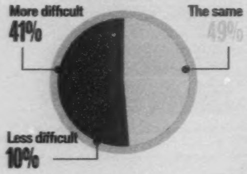
*Top five responses

What changes do you expect in IT head count in the next three months?

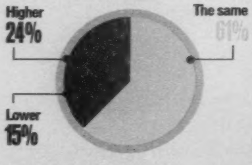


*Average increase: 13% **Average decrease: 14%

Rate your ability to recruit key IT talent compared with this time last year.



How does the IT staff turnover rate at your company compare with this time last year?



Base: 300 IT professionals

Computerworld Vital Signs online survey, May 2006

"Rewind to this time last year: It was a lot easier to get résumés in, and we had a lot more qualified candidates coming in for interviews," says Mark Christopulos, an IT portfolio manager at AAA of Northern California in San Francisco. "Now we're in the situation where we're doing trade-offs: We need to get someone in now, so which one do we take? Before, we were really excited about bringing the people in."

The ongoing economic uptick is clearly at work, Christopulos says. "We're noticing a lot of people who were available a year ago are now employed," he says, adding that workers' perceptions of the tighter labor market affect retention as well. "We're starting to see turnover a little bit higher than it was previously. It's not a problem, but it is noticeable. Last year, people just didn't move on. There weren't a whole lot of people changing jobs."

In the Vital Signs survey, 41% of IT leaders reported that it's more difficult to recruit key IT talent this year than it was last year. And 24% said their IT staff turnover rate is higher now than it was in 2005.

Stephanie Moore, an analyst at Forrester Research Inc., says such responses might indicate that employers need an attitude adjustment. They were so spoiled during the years immediately following the dot-com bust, she says, that they haven't realized that the labor market is now more balanced between employer and worker.

"There was such a plethora of candidates available four years ago," Moore says. "They were used to it being an employer's market."

Still, the situation has some executives re-examining their employment policies to focus on what's working and what's not. Some say they're beginning to feel pressure to raise salaries as a way to recruit the right talent.

Broadwater says that as the market tightens, a certain amount of attrition is nearly inevitable. "We can't compete, being a nonprofit, with the for-profit organizations in terms of salaries," he says.

But Broadwater notes that his organization offers perks that help compensate for salary shortcomings. Sesame Workshop has a comprehensive benefits package, including tuition reimbursement, as well as a good work environment without a lot of stress and where people work well together and receive ongoing training, he says. Plus, the organization produces a product — *Sesame Street* — that people believe in.

But he doesn't rely solely on those factors to draw in qualified people. He also taps into his executive-level contacts at major vendors for referrals to qualified people looking for new jobs.

All the same, Broadwater has concerns about his future ability to attract people with the right skills, specifically those who can maintain legacy systems.

Skills Search

Others, though, say they're having more trouble finding people with some of the newer skill sets. For Christopulos, the biggest challenge is attracting project and program managers.

Eileen D. Heveron, associate vice president of IT at National University in La Jolla, Calif., says workers with experience in both PeopleSoft programming and higher education are the hardest to hire and retain, followed by workers with Web development skills. "They're in demand, and there's just not enough of them," she says.

And for Jon Elsasser, senior vice president and CIO at The Timken Co. in Canton, Ohio, people with storage systems knowledge are the toughest to find and keep. He says companies that have been forced to improve their document-retention policies by recent federal regulations, such as the Sarbanes-Oxley Act, are increasing demand for such skills.

Indeed, data management/business analytics was among the top five technologies that Vital Signs survey respondents said they consider most critical to their companies today. Data security/privacy, disaster recovery/continuity planning, antivirus protection and servers also landed in the top five.

The key skill sets in demand are far broader. Wallace Dalrymple, chief network and telecommunications architect in the emerging technologies group at General Motors Corp., says demand is greatest for network engineers and database administrators, along with workers who have business intelligence, data warehousing and security skills.

And within application development, .Net expertise seems to be particularly hot right now, Wood says.

As competition for key skills heats up, some CIOs are rethinking employment policies. Consider what's happening at Timken, which makes engineered bearings, alloy steels and related products. Elsasser says the company is starting to let people work from home, because more and more workers live farther away from the office than in the past. The company may also establish a satellite office so far-flung workers don't always have to drive to headquarters.

Moreover, although Elsasser has used outsourcing to augment his staff for limited periods of time and does send some development and support work to India, he says he's looking at whether "structural outsourcing" — outsourcing certain skills for the long term — makes sense, especially if he has a hard time finding people with particular skills.

Some IT managers are already at that point. "In a lot of cases, we're forced to use contractors because we're not able to find the qualified employees," Christopulos says.

But not all are convinced that outsourcing and offshoring are the solutions. Some IT leaders point out that their companies' needs are too small to make offshoring financially viable, and Wood says Floridians — the people his organization serves — "don't want to read that tax dollars are going to India."

Broadwater says experience has taught him that using in-house talent is the best value proposition. "We found that people fully invested in the company — who believe in it and are here full-time — stay longer and provide better customer service," he says.

That kind of thinking can change, however, as IT leaders are challenged to implement new technologies and processes aimed at driving business results — without increasing their budgets or head counts. Although 46% of respondents said they expect their budgets to increase in the upcoming 12 months, nearly as many — 43% — expect their budgets to remain flat. And 61% said they don't expect to increase the number of IT staffers in the next three months.

Given all that, it's no surprise that managing projects and budget constraints topped the list of management challenges among surveyed executives.

Heveron offers a broader perspective on the biggest challenge facing CIOs today. She says they must "deliver on time and on budget, keep satisfaction up and downtime at zero" while implementing the latest technologies without drastic budget run-ups or increased head counts — all in an increasingly tight labor market. ▸

Pratt is a Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

COMPREHENSIVE CHECKUP

For more results of our Vital Signs survey and respondent demographics, visit **www.computerworld.com**.

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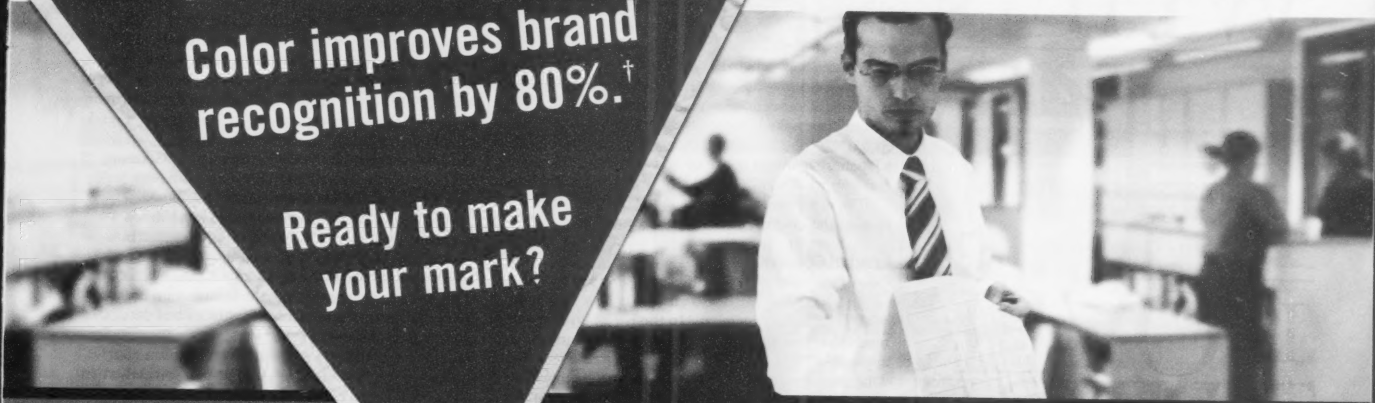

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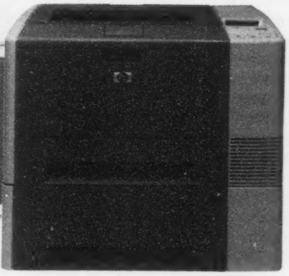

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WHEN HQ IS OVER THERE

CIOs for U.S. divisions of foreign-based companies grapple with big differences in cultures and management styles.

By Thomas Hoffman

WHEN RUSS FINNEY travels to Japan as the CIO of Austin-based Tokyo Electron America Inc., he knows that many of the strategy sessions in which the biggest decisions will be made won't take place in conference rooms or board meetings, but in restaurants and nightclubs.

During the dozen years he's been in his role, Finney has learned a lot about the differences in management styles and cultures between the U.S. and Japan, including a tendency among Japanese businesspeople to make decisions in informal, after-hours settings. "Learning the subtleties in the business culture is an art, and it takes a person who wants to gain a deeper understanding of those cultural differences," says Finney.

CIOs of U.S. subsidiaries need a combination of keen observation skills, social savvy and intuition to strike up successful relationships with executives half a world away. "There are no right or wrong cultures, but some Americans perceive that the American culture should be the global norm," says Don Southerton, president and CEO of Bridging Culture, a consulting firm in Vista, Calif. That kind of mind-set will get you into trouble, he says. "The most challenged American executives are those who have the least global experience," says Southerton.

In contrast, successful CIOs pay careful attention to cultural nuances when they interact with foreign managers. Dave Rice, CIO at Malvern, Pa.-based Siemens Medical Solutions USA Inc., a wholly owned subsidiary of Siemens AG, recalls a conference in which a group of IT and business managers in Knoxville, Tenn., were relaying information about a worldwide customer management system to peers in Japan.

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One of the most striking differences between U.S. and Japanese executives is how each group makes decisions. In the U.S., management tends to arrive at decisions quickly, using a top-down approach.

Japanese businesspeople make decisions more slowly and by consensus, using an approach known as *nemawashi*, which means "tending the roots." In Japan, a business director might float an idea to middle managers first and then try to build a consensus for it before introducing it to senior executives.

But the more time-consuming, consensus-building approach has its drawbacks, particularly in today's fast-paced business environment. "In a larger organization, [consensus-based] decision-making can be impeded by size," notes Robert Schwartz, CIO at Matsushita Electric Industrial Co.'s Panasonic Corporation of North America division in Secaucus, N.J.

Fortunately for Schwartz, Matsushita's chairman restructured the company five years ago, bringing greater alignment among its worldwide sales, manufacturing, and research and development teams. Those changes have resulted in faster decision-making, says Schwartz.

But Schwartz and other American CIOs at Japanese companies have learned how to adapt to the decision-making-by-consensus style. "One of the things you have to learn is when to stop pushing when it's clear that's the direction [the company is] heading in, even if you disagree with it," says Terry Brooks, general manager of the information services division at Yamaha Motor Corp., USA. "At some point, you have to stop swimming upstream."

U.S. CIOs are also sometimes challenged by competing objectives on different continents. For instance, Brooks describes how Japanese management wanted the Cypress, Calif.-based Yamaha Corp. subsidiary to standardize on Lotus Notes instead of Microsoft Outlook and to implement other software systems that were well suited for Japanese operations but not necessarily for those in the U.S.

Brooks says he's had "some success" articulating to Japanese management that rather than standardizing on different software systems, it might make more sense "to focus on achieving a certain level of capability."

Still, many CIOs say they have a fair amount of autonomy when it comes to the types of systems and IT methodologies they put in place. That's due in part to a widespread perception that U.S. IT organizations are leaders in adopting new technologies and management strategies. "Japanese management has given me the latitude to make investments and decisions without having to go back to headquarters and ask, 'May I?' " says Schwartz, who has been in his role for eight years.

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Still, Rice acknowledges that there are differences in the ways Germans and Americans approach business that he and his German counterparts have had to get used to. For example, when a German gives a presentation about a project, the information is extensively documented with lots of statistics and details. In comparison, Americans tend to rely upon PowerPoint presentations that are peppered with headlines but contain fewer details. "Our strengths lie somewhere in the middle," says Rice.

Another big challenge for U.S. CIOs is gaining an understanding of the corporate strategy from thousands of miles away and aligning that with your organization's domestic strategy, says Finney. "If you're working in a foreign subsidiary, you're a little distant from it," he says. And he's talking about more than miles.

Finney finds that Tokyo Electron's extensive use of videoconferencing helps to narrow communication gaps when face-to-face meetings between Japanese and American executives aren't possible. "You can see disagreement or concern [on their faces] where they might not otherwise voice it," he says.

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– THOMAS HOFFMAN

BY DAVID RATHS

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DON'T let the objective become managing IT costs. Ellyn says there's a common perception that steering committees should focus on IT cost containment, but don't let that view take hold. "The charter should be to maximize the performance of the organization," she says. Ellyn's committee looks at the business case for individual IT projects from a cross-functional perspective. Cost savings are laid out in the project plans, and future budgets are adjusted for those expected savings, she adds.

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AKHIL TRIPATHI, CIO, HARLEYSVILLE INSURANCE

DO insist that the business executives make the case for a project. Tripathi requires his IT governance board to hear directly from business leaders about the need for technology investments and the expected business value. The business case makes more sense to the other executives that way, he says.

At a recent IT governance board meeting, the Harleysville, Pa.-based insurer's chief underwriting officer led a presentation on a major software project with assistance from the lead IT employee on the project.

"If we didn't do that, it would be perceived as an IT project without a champion," Tripathi says. "Also, if we didn't discuss it at the governance board, we wouldn't necessarily hear from other parts of the organization on how a project might affect them."

DON'T get swamped in minutiae. "Keep the noise out," Tripathi says. Some IT leaders spend steering committee meetings doing updates on maintenance and support costs, which he says is a bad idea. "We have set a dollar and staff threshold, and the IT governance board does not hear about projects below that," Tripathi explains. Board members get a summary sheet with maintenance costs broken down by business line, but it is not discussed in detail at the meeting. Projects of $50,000 or less are handled by lower-level line managers. "Otherwise, you get bogged down with people saying your mainframe was down for *x* amount of time," Tripathi says. "This is not the place for that. This meeting should remain focused on business strategy, not on service levels or cost containment."

TOM SCHNEIDER, DIRECTOR OF IT, TRUSTREET PROPERTIES INC.

DON'T give IT a vote on projects. When he created an IT steering committee at the Orlando-based real estate investment trust in January, Schneider was trying to address the widespread perception among business managers that IT was shoving projects down their throats. "We needed more buy-in," he says. He declared IT staff a nonvoting resource to the organization. "That takes that issue right off the table," he says. "It puts us in more of a supportive role and not so much in the cross hairs." Now, everyone understands that a project's sponsor will be a business unit, not IT, he says.

DO minimize time commitments. Schneider has worked with the steering committee to streamline meetings, which were unwieldy and difficult to arrange. He reduced the number of attendees from 12 to nine and replaced the committee chairman, who didn't always have time to attend the whole session. Schneider also distributes project proposals in advance so the members can come prepared. "But it requires that they do their homework," he says. ◆

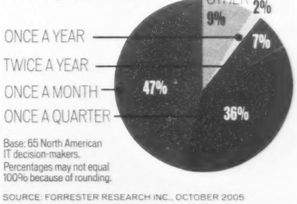
Raths is a freelance writer in Portland, Maine. He can be contacted at draths@maine.rr.com.

STEERING COMMITTEE STATS

Does your firm have a formal IT steering committee?

YES 69% NO 31%

How often does your formal IT steering committee meet?



Base: 65 North American IT decision-makers. Percentages may not equal 100% because of rounding.

SOURCE: FORRESTER RESEARCH INC., OCTOBER 2005

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DON'T brainstorm about technology. Zempel says that in the past, the executive-level IT meetings sometimes got muddled up in pie-in-the-sky proposals or questions that were too detailed. After such unfocused discussions, executives would walk out of the meetings more confused than when they came in, he says, and explaining how complex it would be to accomplish some of their ideas put Zempel in a defensive position. "That's when I changed it to just asking them to prioritize projects," he says. "I'm trying to build relationships with them and deliver technology recommendations based on their vision."

AKHIL TRIPATHI, CIO, HARLEYSVILLE INSURANCE

DO insist that the business executives make the case for a project. Tripathi requires his IT governance board to hear directly from business leaders about the need for technology investments and the expected business value. The business case makes more sense to the other executives that way, he says.

At a recent IT governance board meeting, the Harleysville, Pa.-based insurer's chief underwriting officer led a presentation on a major software project with assistance from the lead IT employee on the project.

"If we didn't do that, it would be perceived as an IT project without a champion," Tripathi says. "Also, if we didn't discuss it at the governance board, we wouldn't necessarily hear from other parts of the organization on how a project might affect them."

DON'T get swamped in minutiae. "Keep the noise out," Tripathi says. Some IT leaders spend steering committee meetings doing updates on maintenance and support costs, which he says is a bad idea. "We have set a dollar and staff threshold, and the IT governance board does not hear about projects below that," Tripathi explains. Board members get a summary sheet with maintenance costs broken down by business line, but it is not discussed in detail at the meeting. Projects of $50,000 or less are handled by lower-level line managers. "Otherwise, you get bogged down with people saying your mainframe was down for *x* amount of time," Tripathi says. "This is not the place for that. This meeting should remain focused on business strategy, not on service levels or cost containment."

TOM SCHNEIDER, DIRECTOR OF IT, TRUSTREET PROPERTIES INC.

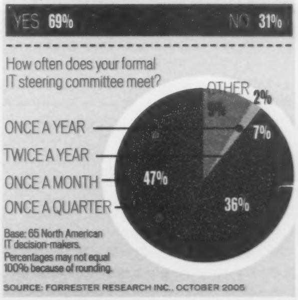
DON'T give IT a vote on projects. When he created an IT steering committee at the Orlando-based real estate investment trust in January, Schneider was trying to address the widespread perception among business managers that IT was shoving projects down their throats. "We needed more buy-in," he says. He declared IT staff a nonvoting resource to the organization. "That takes that issue right off the table," he says. "It puts us in more of a supportive role and not so much in the cross hairs." Now, everyone understands that a project's sponsor will be a business unit, not IT, he says.

DO minimize time commitments. Schneider has worked with the steering committee to streamline meetings, which were unwieldy and difficult to arrange. He reduced the number of attendees from 12 to nine and replaced the committee chairman, who didn't always have time to attend the whole session. Schneider also distributes project proposals in advance so the members can come prepared. "But it requires that they do their homework," he says. ▸

Raths is a freelance writer in Portland, Maine. He can be contacted at draths@maine.rr.com.

STEERING COMMITTEE STATS

Does your firm have a formal IT steering committee?



Base: 65 North American IT decision-makers.
Percentages may not equal 100% because of rounding.

SOURCE: FORRESTER RESEARCH INC., OCTOBER 2005

Career Watch

CS Enrollment: Out of Sync

What's behind the declining interest among U.S. college students in computer science? The Washington-based Computing Research Association (CRA) recently reported that the number of bachelor's degrees in computer science at Ph.D.-granting universities fell 17% from the 2003-04 academic year to 11,808 in 2004-05. Those schools represent about 30% of the total undergraduate population in the U.S. The same trend may also be affecting academic programs that combine business and IT skills training.

"It's almost like somebody flipped a switch on the undergrads," said David Meinert, a professor who heads a master's program in computer information systems at Missouri State University in Springfield.

Blame for the decline is attributed to several factors: the collapse of the dot-com bubble, fears about offshore outsourcing and slack overall IT job growth.

Jay Vegso, who prepared the CRA's report on enrollment and graduate trends, said enrollments are showing a "delayed reaction to the 2001-2002 slowdowns in the tech sector." Because of this lag, computer science enrollments are usually out of sync with technology sector needs, he said.

– Patrick Thibodeau

Thibodeau's full report, "As Outsourcing Gathers Steam, Computer Science Interest Wanes," can be found on Computerworld.com.

Meanwhile, on the Job . . .

There's new evidence that IT workers are happy campers.

	IT Workers	All Workers
Somewhat or very satisfied with their pay and benefits	78%	72%
Expect to make more money this year than last year	57%	41%
Received a raise within the past six months	46%	33%
Raise was based on performance	47%	35%

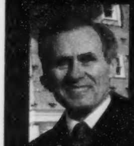
Source: Hudson 2006 Compensation and Benefits Report, a June survey of 10,000 workers in all sectors, 440 of whom work in IT

Ask a Premier 100 IT Leader

Hap Cluff

TITLE: **IT director**

ORGANIZATION: **City of Norfolk, Va.**



Cluff is this month's guest Premier 100 IT Leader, answering readers' questions about education choices and career directions. If you have a question that you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month.

I'd like to jump-start my career with new certifications. Is e-learning viable, or should I go with classroom training?
Certifications are nice and sometimes required for certain technical positions. When I hire people, however, certifications aren't "qualifiers." In fact, none of the job descriptions for my IT shop calls for a college degree; instead, they all stipulate "college degree or equivalent related experience." More and more, we are looking at talent rather than skills and knowledge. We can develop skills and teach knowledge, but someone who isn't inclined to be a technologist isn't going to learn to be one. These are the kinds of things I advise you to express on your résumé. Obviously, one way to make the talent point is with certifications in your area of interest. I couldn't care less where or how you attained them.

I am graduating from an IT management program in Toronto and looking for my first job. So far, I have not been getting a response. Any suggestions on finding entry-level work in IT?
Offer to work for free in a local municipal or school IT shop. Then put your head down and work your tail off. Nothing answers the question of ability like previous experience.

I have 10-plus years of experience in databases (DBA, support, etc.). I have worked on ERP, CRM and other projects and have spent more than three years in SAP environments. With outsourcing and cost-cutting so prevalent today, should I get more experience in SAP plus databases, concentrate purely on databases or do something else?
The most important thing is to choose one thing — it doesn't matter what. None of the things you are experienced in is likely to go away anytime soon. Don't fret over it any longer. Just decide right this second. It's that easy. By choosing, you accomplish two things: You learn to trust your "natural knowing," and you know exactly what to do next. As long as you are vacillating, you are like a sailboat with no wind.

Choosing one thing doesn't mean you can't change your mind later if you discover that the direction you chose isn't what you expected it to be. It just means that you are progressing all the time.

PAGE COMPILED BY JAMIE ECKLE.

EVEN CONVICTS GET TIME OFF FOR GOOD BEHAVIOR

U.S. workers just can't seem to get the hang of that vacation thing. Not only are they at the bottom of the pack among developed countries in number of vacation days they are granted each year (14, compared with 39 in France), but, on average, they will work on four of those days in 2006, according to Expedia Inc.'s sixth annual "Vacation Deprivation" survey. The survey found that 33% of Americans do not always take all of their vacation days, even though 36% said they feel better about their jobs and more productive upon returning from vacation.

574

Number of earned vacation days Americans in 2006

EXEC TRACK

Yellowpages.com Names Mohs CTO

Yellowpages.com LLC, a joint venture of AT&T Inc. and BellSouth Advertising and Publishing Corp., announced the addition of BRAD MOHS as chief technology officer. Mohs joins the company from Scientific Games Corp., where he was senior vice president of software engineering. Previously, he served as CTO at AutoTrader.com LLC.

Matheny Is Chosen As CTO at AdValiant

JOSEPH MATHENY has joined AdValiant Inc., a New York-based online advertising company, as CTO. Matheny's online media experience dates to 1988 with some of the early bulletin board systems that preceded the Internet. Most recently, he was in charge of product management and marketing at introNetworks Inc., a vendor of corporate social networking platforms.

DeLand Is Promoted To CIO at La-Z-Boy

La-Z-Boy Inc. has promoted DANIEL DeLAND to CIO from the position of director of technical business solutions. He began his career at Monroe, Mich.-based La-Z-Boy in 1999 as manager of application services. Prior to joining La-Z-Boy, DeLand was a senior systems engineer at Electronic Data Systems Corp. He will report to Otis Sawyer, senior vice president of corporate operations, who previously held the CIO position.

Walden to Head IT At YTXP Corp.

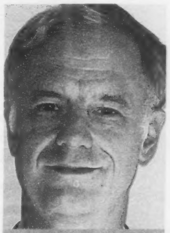
YTXP Corp., a Richardson, Texas-based provider of premanufacturing services for the electronics industry, has hired ROBERT WALDEN for the newly created position of CIO. Walden was previously chief architect and manager for emerging technologies at 7-Eleven Inc. He was also a systems architect at CitiFinancial Mortgage Corp. and director of Internet marketing at The Associates.

BART PERKINS

Stifling IT Innovation

WHEN THE BOARD SAYS, "Be more innovative," many CEOs turn to their CIOs. Requests for innovation also come from other departments after they hear about new technologies from vendors or trade magazines. As a result, many IT organizations are being told to be more creative, and articles stating that the CIO should become the "chief innovation officer" abound.

If IT doesn't provide some of the innovations requested, other departments may look elsewhere. Many vendors are only too willing to bypass the CIO and sell to other executives directly. These sometimes haphazard technology additions may include products that are harmful to the company's infrastructure. In addition, they may be installed without adequate consideration of compliance requirements, architectural integrity, documentation needs or security and backup issues.



BART PERKINS is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. He was previously CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at **BartPerkins@LeveragePartners.com.**

But industry changes in recent years have made it increasingly difficult for most IT organizations to innovate. Here's why:

Political and financial pressures. Y2k efforts consumed massive financial resources without providing many visible benefits. (Disaster prevention is a thankless job.) Many business executives concluded that IT had seriously overspent and underdelivered. Combine that mind-set with the huge expenses and unmet expectations of the dot-com bubble, and the result was that many CIOs and IT organizations lost their credibility. When the recession hit, IT budgets were slashed, and many CIOs were forced to cut virtually all discretionary spending. That funding has been slow to return to most IT budgets.

Outsourcing. While outsourcing has many benefits, it often results in brain drain. After major outsourcing efforts, the character of the remaining work is substantially different, shifting from development and operational concerns to monitoring and managing the outsourcer(s) and programs. Many innovative developers go elsewhere.

Laser business focus. Successful executives require the use of business cases to ensure that projects will meet corporate business needs. But an overly heavy focus on provable, quantifiable ROI frequently discourages funding those "creative leap" projects that are often necessary for breakthrough innovation. For example, ATMs originally showed very low ROI and were considered a financial risk.

Re-engineering failures. Re-engineering can generate creative and innovative solutions to problems. Because of some spectacular failures in recent years, however, re-engineering efforts have been largely (often unfairly) discredited and mostly abandoned. Many specialists have moved to other disciplines.

The nature of IT. Delivering and supporting IT capabilities in today's business environment requires more logic, discipline and attention to detail than creativity. For example, an effective systems development methodology requires compliance, not innovation.

What's a CIO to do? There is no "creativity pill" for your IT organization. At a minimum, innovation requires four things:

■ **People.** Leverage the talents of your naturally creative people, borrow some from other departments (such as marketing or R&D), or hire consultants to help generate innovative ideas.

■ **Process.** Advertising and other creative professionals employ various tools and techniques to foster creativity. Implement your own techniques for encouraging the creative process, as recommended in recent industry publications.

■ **Perspective.** Make a conscious shift. Most people, including IT staffers, instinctively focus on day-to-day issues rather than long-term creative solutions. Consistently allocate some management time for focusing on innovation. (Your job may depend on it someday, whether or not it appears in your performance objectives.)

■ **Public recognition.** Reward innovation publicly, and use financial incentives and other perks specific to your company's culture to encourage creativity.

In addition, synchronize your innovative endeavors to your company's business cycle. Companies experiencing downturns are often unable to fund expensive innovation efforts. But, as Clayton Christensen warns in *The Innovator's Dilemma* (Collins, 2003), successful, complacent companies must ultimately innovate or die.

Above all, manage executive expectations regarding staffing and scheduling. Innovation is a process, not a project. Great ideas often require a long incubation period. They can't be scheduled or mandated.

3M, noted for producing many innovative products, gives its researchers a percentage of their work time to pursue projects that interest them, without a required outcome. The company recognizes that an innovative idea may take months or even years to bear fruit. Many of 3M's most notable innovations have come from these research efforts.

Unfortunately, today's IT organizations are often not structured to innovate effectively. Unless your corporation is willing to foster a creative environment, employ appropriate staffers and support the creative process (both politically and financially), innovation will be stifled. Be realistic about what innovation requires. It's hard to leverage what you don't have. ▸

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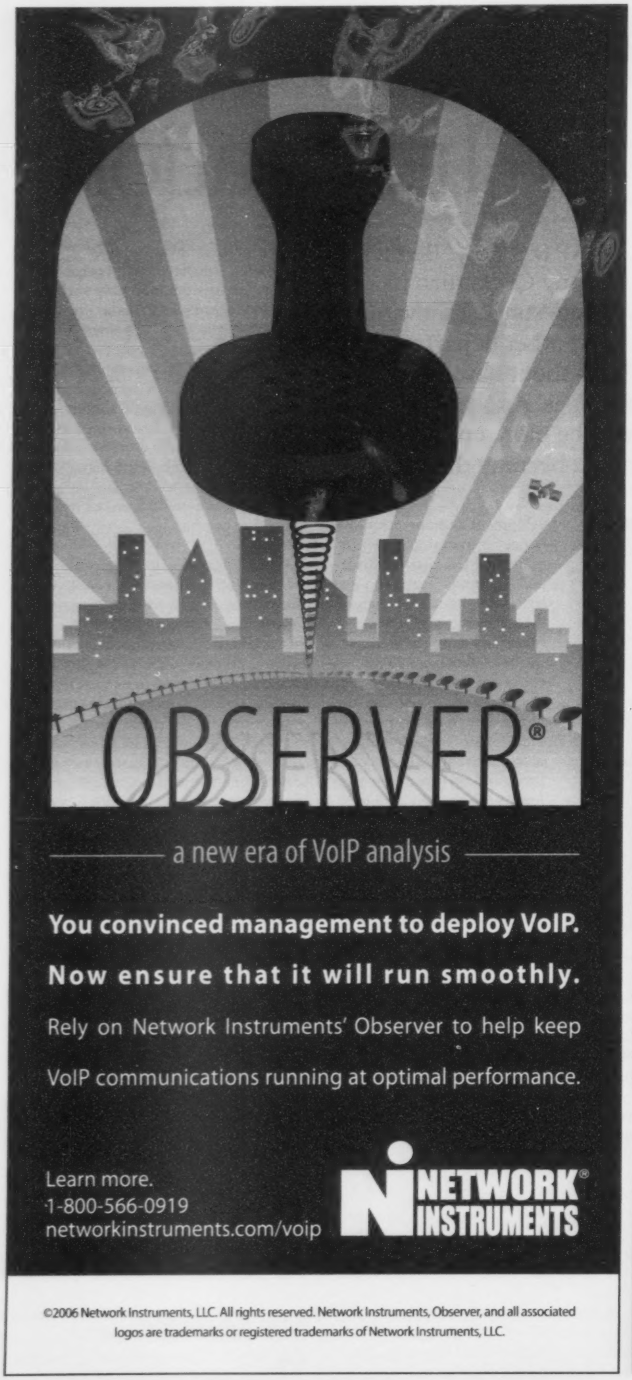

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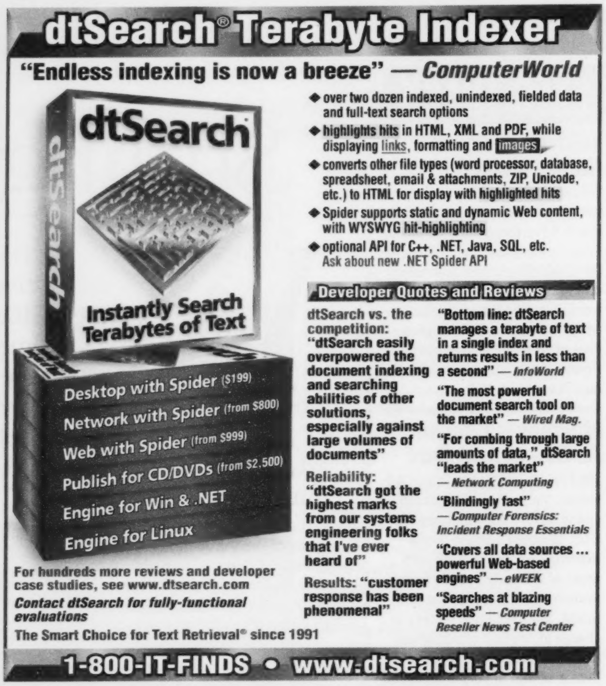

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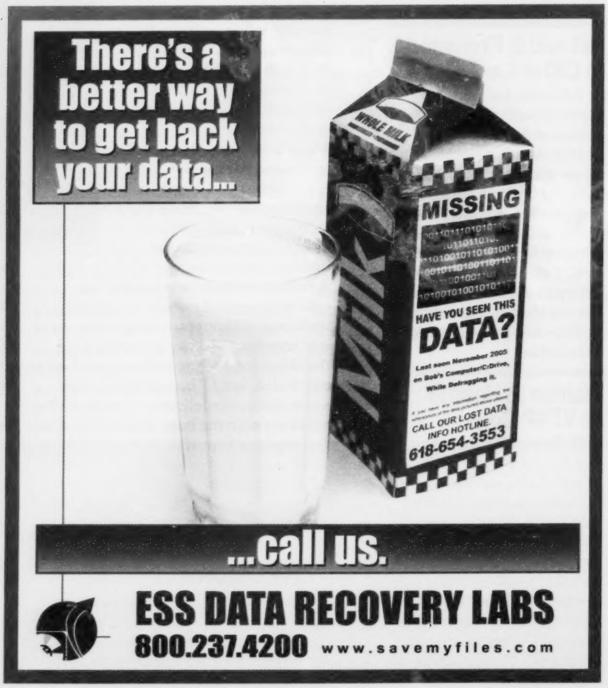

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Qualified candidates should submit a cover letter and resume, to Jennie Strable, C/O GATX Corporation, 500 W. Monroe Street, Chicago, Illinois, 60661. Principals only need apply. GATX CORPORATION IS AN EQUAL OPPORTUNITY EMPLOYER.

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Microsoft ODF

gin migrating state employees to ODF by Jan. 1, 2007.

The Word plug-in is expected by December, with similar plug-ins for Excel and PowerPoint anticipated in 2007, according to Jean Paoli, Microsoft's general manager for interoperability and XML architecture.

The Belgian and Danish governments both announced last month that they will move to ODF, a free XML file format approved by the International Standards Organization (ISO) in May.

Norway and France are also considering ODF, which proponents argue is better at ensuring long-term accessibility to documents and opens the door for organizations to use alternative productivity software, including Sun Microsystems Inc.'s StarOffice and OpenOffice.org's offering.

Belgian officials praised the Microsoft move. "This is an important commitment regarding software interoperability. Hence, we're extremely pleased by this announcement by Microsoft," said Peter Vanvelthoven, Belgium's minister of employment and computerization.

Three companies are working on the Microsoft-sponsored plug-ins: Paris-based Clever Age, which has written most of the code thus far; Bangalore, India-based Aztec Software Inc., which will test it; and Saarland, Germany-based Dialogika GmbH, which will test and help implement the finished plug-ins. The plug-ins are expected to have "batch" capabilities so that users can convert multiple files at a time.

Until now, Microsoft has publicly declined to support any moves toward making OpenXML compatible with ODF, saying that doing so would stifle its own innovation. But Robertson acknowledged that the company had been discussing that option with government customers for months.

Besides providing an unspecified amount of funding, Microsoft will offer technical assistance. In other words, the project is fully open-source and not run by the company.

"Clever Age is the owner of the project, but as in any good open-source project, anyone can participate, anyone can modify or develop on top of it. We are not a gatekeeper in any way," Paoli said. The plug-ins will work with the upcoming Office 2007, as well as with older versions, he said.

Paul DeGroot, an analyst at Kirkland, Wash.-based Directions on Microsoft, said that while Microsoft's move was "inevitable," it goes against the company's normal tactics. "One of Microsoft's most important principles has been to control standards, don't let others set standards for you. When that has happened, they have regretted it," he said.

But other observers praised Microsoft's move to dip its toes into the open-source waters it has long publicly disdained. "I welcome Microsoft into the OpenDocument environment," said Douglas Johnson, corporate standards program manager at Sun. "Sometimes zebras get new stripes."

ODF Plug-Ins

List of converters between Microsoft Office and OpenDocument

DEVELOPER(S)	TYPE OF CONVERTER OR PLUG-IN
■ **Clear Age, Aztec Software and Dialogika** (all funded by Microsoft)	Word plug-in by end of 2006; plug-ins for Excel and PowerPoint in 2007
■ **Sun Microsystems**	Office plug-in and Web service that can convert multiple files at a time
■ **The OpenDocument Foundation Inc.**	Word and Excel plug-ins in beta; PowerPoint plug-in in development
■ **Media Entities Inc.**	Word-to-ODF converter is available
■ **Tonic Systems Inc.**	A PowerPoint converter that could add ODF feature

Mass. Senate Panel Criticizes State IT Division's ODF Plans

A MASSACHUSETTS state Senate committee late last month released a report criticizing the state's IT division for its "unilateral" plan to force statewide support for the OpenDocument format.

The report, titled "Open Standards, Closed Government: ITD's Deliberate Disregard for Public Process," says that the plan fails to evaluate costs, the effect it could have on state public records and possible limitations on IT accessibility for the disabled. It also claims that the plan ultimately violates state law.

In a statement, Felix Browne, a spokesman for Massachusetts Gov. Mitt Romney's office, said that the committee report "is wrong on the facts and wrong on the law. We are committed to an open-standards approach that fully takes into account all accessibility, cost and statutory requirements."

Last September, then-state-CIO Peter Quinn finalized a plan to begin migrating by Jan. 1, 2007, to OpenDocument formats for reading and saving reports, spreadsheets and presentations.

Andy Updegrove, an open-source advocate and Boston lawyer, contended that the Senate committee's report only rehashed old criticisms.

"Certainly, the ITD made some mistakes, but there were two sides to this story. Unfortunately, only one is reflected," he said.

Melanie Wyne, executive director of the Initiative for Software Choice, a Washington-based advocacy group managed by CompTIA, said the report echoes her organization's point of view. The plan "never defined what was open; they just picked a certain technology," she said. "It's a technology mandate by another name."

The report recommends delaying the switch to OpenDocument until backers show that disabled users can access documents in the OpenDocument format.

Sun Microsystems, a strong backer of OpenDocument, late last month demonstrated to state officials a Sun plug-in that lets Microsoft Office-compatible software, such as Dragon NaturallySpeaking from Nuance Communications Inc., convert OpenDocument files from text to speech, said Douglas Johnson, Sun's corporate standards program manager.

Barbara Lybarger, general counsel for the Massachusetts Office on Disability, confirmed that Sun's plug-in "performed very well" in the demonstration. But she added that the "devil is in the details" and called for such potential solutions to be properly tested with handicapped beta users.

– ERIC LAI

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N.J. IT

He said those services are "the glue" that is holding state and local governments together.

"That's something I watch on an hourly basis," Ebeid added.

Once operations return to normal, Ebeid will review the response. "I think we can probably learn from this and hopefully document the decision-making process . . . so that you try to bring some order to the chaos," he said.

Important steps include having a clear chain of command so employees aren't making decisions on their own, said Ebeid. "There is a very clear and deliberate process from the top on what essential services you have to support, and the folks on the front line have to be very clear on what their next set of actions are," he said. "There is very little room for error, and there is no margin for delay."

Postmortem Assessment

Otto Doll, the CIO of South Dakota and a past president of the National Association of State Chief Information Officers, said he would be interested in seeing a postmortem on the how the New Jersey IT department responded to the budget crisis.

"It sort of is a worst-case pandemic influenza scenario," where large numbers of staffers are lost, said Doll — though, he added, "obviously, they have the opportunity to choose who they lose." But the real question, he said, is how the shutdown affected services. Were state services affected "because that's what you politically wanted to do, or you just [couldn't] function?" he asked.

Doll said he would like to know which state services were automated and thus continued to be offered. For instance, in South Dakota, a resident can order a fishing licensing online, pay for it and print it out on his home computer.

"That was the whole hope of e-government," he said. "We weren't going to need all these people to process this stuff."

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FRANK HAYES ■ FRANKLY SPEAKING

Business Case

DEPARTMENT OF CORRECTIONS: Two weeks ago, writing about a CEO who only cares about his company's stock price, I said: "Plenty of investors, and big shots like The Conference Board, believe that's all he *should* care about." I received a very civil note from someone at The Conference Board suggesting that his organization wasn't the one I should have mentioned.

He was right. It was the Business Roundtable that, in 1997, declared that the CEO's only job is to maximize shareholder value.

That was a dumb, sloppy mistake. I should have caught it, and I apologize to The Conference Board for misstating its position.

Now here's the big question: Did *you* catch it?

If you're like most IT people, probably not. After all, one big-deal organization for CEOs sounds pretty much like another. The fact that The Conference Board is the research outfit that releases the Consumer Confidence Index and other economic data, while the Business Roundtable is a lobbying group, goes right past us.

And that's a problem if we want to be able to make the business case for IT successfully.

We don't have to think like CEOs to do that. But we do have to understand what executives and senior managers are thinking about. We have to know the right buzzwords to say, and the right buttons to push, when we talk to them about the value of any big IT project.

We have to understand, at least a little, why The Conference Board and the Business Roundtable matter to those business-side bosses. And if cutting head count or increasing sales is more important to them this year. And whether they're more concerned about inventory turnover or cost of goods sold. And how fast they want results.

Put bluntly, before IT can succeed at helping the business succeed, we have to know how success is defined. And that means we have to get smarter about the business than we are.

How do we do that?

Oh, we *could* do it the hard way: Get a proper business education, collect our MBAs, do thorough case studies of the company and the industry, then create IT and business strategies that will maximize whatever we think is most important to the business. In other words, we could make believe we're CEOs.

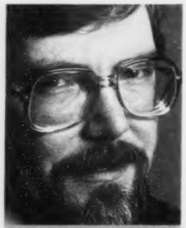
But why waste all that time, expense and effort? Our actual CEOs would probably come up with different strategies anyway. And their strategies change as business and channels and products change.

Instead, let's do it the easy way and just ask. Not the CEO, but the line-of-business managers we actually collect requirements from. Along with determining operational requirements, we can also ask them — point-blank — what it's going to take to sell the project to management. What buzzwords we need to comply with. What priorities we need to support. What worries we need to offer relief for.

Those business-side managers should know. If they don't, they can find out and tell us. And we'll be able to treat those buzzwords and priorities and worries as real requirements. As we should — because, to management, they are.

If we don't understand some of those requirements, we can drill down with the managers until we figure them out. Think of it as just-enough, just-in-time business education.

Then, when we make the sales pitch to the executive sponsor, we'll use the right words and hit the right buttons. We'll be selling upper management exactly what it wants to hear.


FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

The downside? We won't be quite as smart as we appear to be. We'll know just enough to close the deal. Then we'll have to work that much harder to make sure we deliver on our sales pitch.

Yes, it's a little tricky. But it's an opportunity to make IT look business-smart *and* get the green light to deliver the technology the business needs.

And letting that go right past us would be the biggest mistake of all. ▸

No Good Deed Goes Unpunished

This Type A tech is blasting his way through 80-hour weeks and sprinting toward burnout, says a co-worker pilot fish who asks him about it. "He had the idea that he would get those hours back, like a month's worth of extra vacation time," says fish. "I talked with my managers about how his stress was affecting all of us and learned that in fact he wouldn't be getting those hours. Ouch! The worst part was watching him over the next few days, where a normally friendly person switched to being extremely vile. I figure they finally had to break it to him that he was working extra hard essentially for nothing."

SHARK TANK

Nice Work

Computer store pilot fish is called in after a local insurance company's network is down following a storm. "We discovered that a surge had made its way through the network cable and fried the network cards on the PCs," says fish. "No problem: We replaced the cards and *voilà!* the computers were communicating again on the network. Next day, I was disciplined because I had 'gone over my manager's head' by fixing the bad network cards. I later discovered that a whole new set of PCs was ordered upon recommendation by my manager before we'd even evaluated the problem."

Yeah, It's Just You

User can't connect to the wireless network, so he brings his laptop to this support pilot fish for troubleshooting. "I monkey around a bit with the Wi-Fi settings until it looks like the connection has been established," says fish. "Then, to test it, I maximize the browser window that he left minimized down on the task bar. I look at the contents of the browser window for a few moments and muse to myself that before you give your laptop to the guy who's in charge of enforcing corporate IT usage policies, it *might* be a good idea to close the window full of porn. But then again, maybe that's just me."

The Reason Why

This very pleasant department clerk is known for having very strange PC problems. "The fix always seemed to be rebuilding her PC from scratch," says a help desk pilot fish. But one day the clerk casually mentions that she tries to speed up her PC by deleting all files that are more than two years old. "Her reasoning was that something that old couldn't possibly be of any use," sighs fish. "What followed was my futile attempt to explain how operating systems work and why deleting old files was not a good idea. But at least we found out what was happening to her computer."

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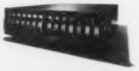

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